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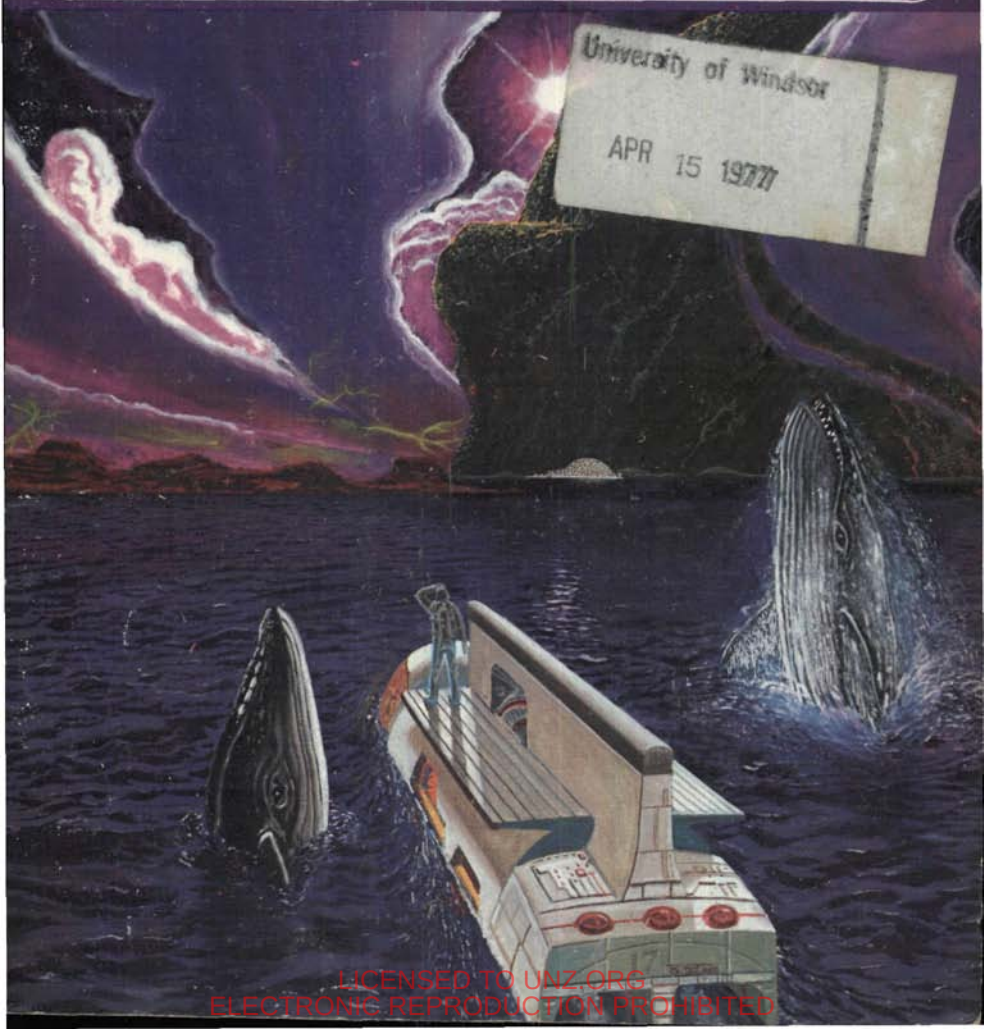
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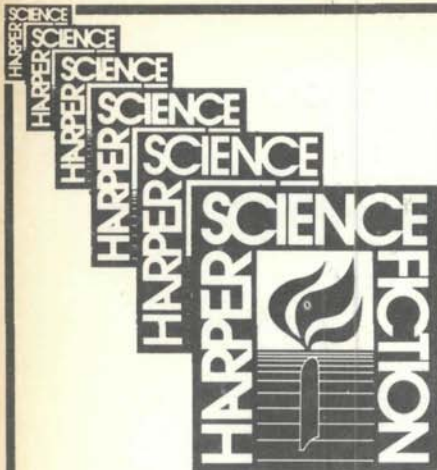
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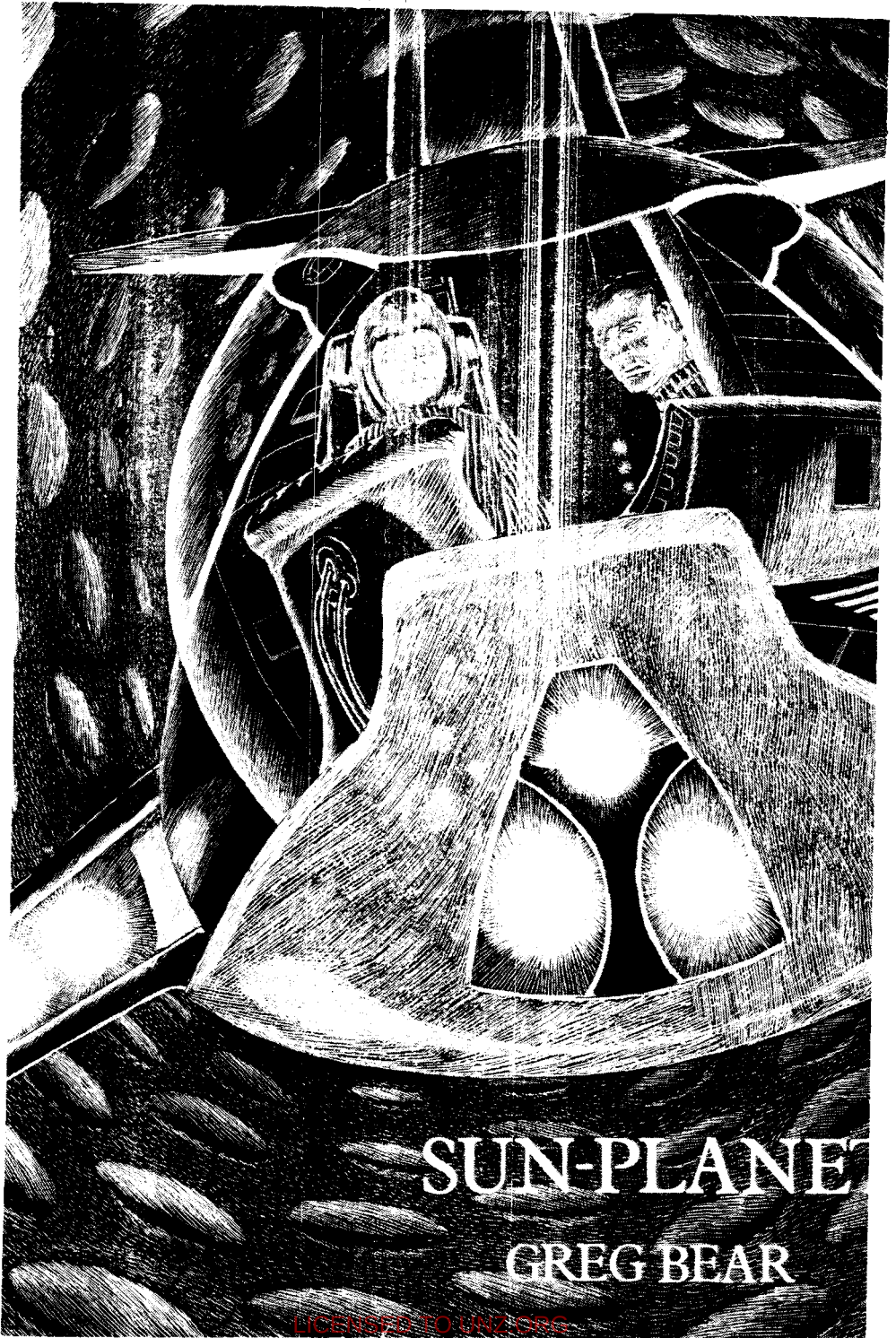
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SUN-PLANET

GREG BEAR

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The aliens had left a mighty legacy—and men were not the only ones who claimed it!

I

“I’M JUST SAYING they could be traitors,” William Berker told the new commander.

“I take it you haven’t any great love for the setties,” Kenneth Green said.

“A hundred and ten years ago, the Perfidisians drove us out of this section of the Eridanus line.” Berker’s throat bobbed. He was fifty years old, thin as a rail, with a narrow head and jaw wrapped in wrinkles. Facial lines fell more quickly under Sun-Planet’s pull. The arms of his jumpsuit were appliquéd with the insignia of the duty stations where he’d served. “They took over this station and all the others, and Home Field, too—kicked us all out—”

“I know that, Mr. Berker,” Green said.

“And the setties worked for them without blinking an eye!”

“Whether you love them or not, the setties are still co-workers.

W-we can’t get along h-here without th-them. Any more of this talk will net you disciplining. Understood?” The new commander stammered when he was tired or angry, and now he was a little of both. He’d been on Sun-Planet for ten hours. He ran his hands through his hair and turned to face the third-in-command. Like Berker and ninety per cent of the civilians on Sun-Planet, Wedge Margul was an Abstainer. He was a heavy man, with dull eyes and pale flesh, hands scarred from heavy labor, forearms knotted with muscles. He was also nearly bald, with just a fringe of soft, white hair which he grew long enough to cover his ears. Compared to them, Green was fully aware he looked like a Fresher—new to Sun-Planet, new to the problems, and not nearly tough enough to command respect from natives like Berker and Margul.

“Commander,” Margul said, “Mr. Berker has been under some strain since Loytnant Keefer died. I have, too. We’re upset because we have to pull out again. Please excuse any indiscretion. There hasn’t been good military routine here for over a month, and we’ve lost some of our tact.”

“At any rate, that’s the situation,” Berker said.

“I know,” Green said. They stood in awkward silence on the ramp over the settie quarters, now drained for monthly cleaning. Automatic scrubbers rolled across the

tank bottoms, hissing and spitting fine mists of disinfectant. What had started as a tour of the locks and settle quarters had ended in confrontation. Despite his irritation, Green knew the two men had handled the Main Station competently since Keefer's death, two months past. And Berker's analysis was much closer to the official position than Green found comfortable. There was worry among the Administrators on Myriadne, ten thousand light years distant, that Sun-Planet held far more than was generally suspected. The settlers had been working on the problem for two centuries, and it looked like they might have the beginning of a solution any time. But would the solution be important in more than just an abstract, philosophical sense? Might it not contain something, imply something, that would make its knower more powerful than anyone else in the explored galaxy?

Green would have to make the final decision. "When the next group of settlers arrive, I want to be told. I'll be in my cabin. Thank you for the tour, gentlemen." They nodded.

Green took the elevator to the fifth floor of the Station and walked down the observation hall gallery. The glass was dark and reflected the sheer white light of the ceiling panels. He stopped to look at his reflection. Flecks of red and green were visible behind the image.

He hadn't looked outside yet.

Ten hours and he'd spent it all administratively, bickering and settling in and getting facts and priorities straight. He'd been through this hall four times and he hadn't shut the lights out to look across the surface.

"All right," he said. "Show. Panels out." The vox mechanisms dimmed the lights until the hall was dark and the window was transparent. Green caught his breath. "I'm in charge of you now," he murmured. His new command was one hundred thirty thousand kilometers across with an average density twice that of water and an average surface temperature of thirty degrees celsius. The clouds on the horizon were green with a continuous discharge of heat lightning. They swirled and played at different shapes as he watched. Below them were the waters and islands of the Ganset Sea. Between the Station and the eastern arm of the sea was a rift in the black crustal shield. Sparks danced in the reddish glow which welled up from the lava of the mantle below. He leaned on the railing before the long gallery window and squinted to pick up the outline of the Kerith Post, ten kilometers distant on Laith Island. The small concrete shelter housed the crust monitors for the area. A hundred thousand years before, Sun-Planet had been more reliable, under the complete control of its creators, the Darks. But they had left only a few millennia after finishing their work, and the world

had begun its slow decay. Now Sun-Planet was a symbol of instability—Green had received much kidding about going to live on a time bomb. The symbol was somewhat exaggerated. The crustal shields were still stable enough to live on, at least within the span of an Abstainer's lifetime.

The Ganset Sea was crossed by scattered waves of blue light, the phosphorescence of minute sea life. Ten-meter cephalopods known as skipperjacks fed on the small life and the setties fed on the skipperjacks. Humans, in a way, hoped to feed on the setties—on their two centuries of studying and deciphering.

Green hadn't met with the setties yet. "Lights on," he said. He crossed the hall and held his hand up to the ID plate that monitored the door to Officer's Country. In his cabin, he lay back on the sleep field and closed his eyes. For a few minutes he contemplated whether or not to control his sleep. His eyes focused behind closed lids on the tiny speck of Kerith Post. That was the center of his decision now, the center of his purpose. His eyes opened. Behind closed lids it was terrible and lonely, as if, under the roof of his head, there was no one to keep him company . . . or a crowd, none of whom recognized each other.

But he did not induce sleep. He had six hours, and he was damned if he was going to let unease rob him of the treasure of uncontrolled

slumber. In an hour he was quiet and breathing evenly.

II

Sun-Planet's morning, which came every three terrestrial days, was a weak show. The distant flare which was Koestler, four billion kilometers away, threw its murky spotlight over the horizon clouds, then rose to cast a dull, refractory gleam on the crustal plains. The Station crew carried a continuous watch, and it was only coincidental that morning coincided with the watch change and Green's appearance in the lounge. He carried his Man Amplification Suit in one hand and a cup of coffee in the other. His walk was measured; he'd only been awake for fifteen minutes and was still groggy.

Berker and Margul awaited him in the officer's lounge. He was mildly irritated to see the two civilians there—but they'd earned the privilege. Sun-Planet's government was an unusual arrangement, a compromise between the Combine Astry and the original controllers; the Galactic Social Engineers Berker and Margul had as much right to command privileges as he.

"Come in, Commander," Margul said, fleshy hand beckoning. The smile was almost too much for Green's morning condition, but he managed a weak grin in return and set his MAS beside the chair Margul indicated.

"We hope you're ready for Water today."

"Hm?" The reference passed him by for a moment. "Oh. Most interested." He took a sip of the coffee. It was the ritual of the morning drink that helped, not the minimal stimulant in the dark, thick brew. "Mrs. Hass and Mr. Pink inform me we have setties in the lock now. I'd like you gentlemen to accompany me and give introductions."

"This group is here for ritual reasons, Commander," Berker said. "You might want to wait for an information party—"

"I'd like to see a few setties before visiting Water," Green countered. "They d-don't have to be talkative."

Berker nodded and they stood, picking up their suits and carrying them to the central elevator. The Station was an oval building of five stories. The top floor contained Officer's Country and the communications center, the fourth floor computers, the third floor the library, and the second floor the crew and temporary civvie quarters. The first level, below ground, contained the locks and a bank of settie quarters, refilling with water from the canal after cleaning.

The ramps above the settie quarters were cluttered with sprayer tanks and long-handled hoses left by the sanitation detail. Margul threaded his way through the tangle and glanced back apologetically at

Green. "A lapse—" he began.

"Put the detail on minor report and get them up here as soon as the setties are gone. Tell them their pay is suspended for the watch during which they left this equipment out. I want settie quarters clear of all human equipment, whether the setties can see it or not. That's a fixed rule, Mr. Margul, Mr. Berker."

Berker nodded absently. The setties, though equipped with massive hand-like flippers, had had a long-standing law against the use of tools. They reluctantly accepted structures like the locks and quarters in the Station, and necessary human aids, but for some reason hidden in their cetacean ancestry they abhorred technology.

Each lock was a hundred meters long. There were five locks in the northern pens, and ten in the southern. The water was dark and radiated a steamy warmth which Green found uncomfortable. Three of the locks were occupied.

"Who's with us today?" Berker asked the guard.

"Lock one has Two-Dot, three has V-Spot, and five has Zero-Nose."

"Let's go to five first," Margul said. "Zero-Nose is the group negotiator this month. This isn't an information party, but I'm sure he'd appreciate our speaking to him instead of V-spot, his interlocutor. It's a sign of confidence." Green agreed with a smile. That he could sympathize with.

The ramps above the locks were illuminated by steplights that had been carefully placed so that their backwash didn't reach the water. It was like travelling down a dark tunnel, with the sound of sloshing water all around, and a few meters away, the whoosh of Two-Dot breeching in lock one.

Green instinctively took a deep breath as he peered over the ramp into the black waters of the lock. He could barely see the glistening shape of the settie's fin and hear the rippling sound of the water as the creature breathed. The click of his air hole was less pronounced than Green had been led to believe.

Berker tapped his knuckles on the railing. "Zero-Nose," he said into the translator mike. "We accept your presence and position, and request communication."

The water became agitated as the settie began a slow roll to his side. Green grew accustomed to the dark slowly, and thought he saw the tiny gleam of an eye. His mind felt a pressure like the preliminary signs of a headache. The supersonic vocalization was picked up by the translator and converted.

"Presence acknowledged," the settie said.

"Zero-Nose, we have a new Station Commander. His name is Kenneth Green, and he would like to speak to you."

"Not today," the settie said.

"Then at your convenience," Berker said with a wry twist of face.

"We wish you luck with your duties, and thank you for your attention." He switched off the mike.

"They're here to fulfill part of a swearing-in ceremony in Water, near as we can tell," Margul said. "The locks are something of an ordeal for young setties. In the nurseries, they are taught to despise all machines and tools. Then they have to face the real world and deal with tuberiders and MAS's and all the things we need to survive. It's pretty traumatic. I don't think they can really respect humans. We're too dependent on our machines."

"It can be a damned stifling attitude," Berker commented.

Green was a little puzzled. "How do you keep track of their findings without recorders? I thought it was passed on by verbal communications."

"Yes, but usually the tenders mediate. They're trained to understand settie languages in the middle, human frequencies. Sometimes they swim with the setties and work in the nurseries." Margul smiled. "Mr. Berker was married to one. They make interesting mates. Those of us not trained to have long memories have to resort to recorders. We don't qualify for more than amenities, I'm afraid."

"I haven't met a tender yet, either," Green said with some chagrin. "Gentlemen, pardon my ignorance and clumsiness these first few days. There are a lot of things not covered in the manuals. Your

guidance is deeply appreciated."

Margul smiled noncommittally, and Berker nodded without apparent sympathy. Green was ill at ease again, and wondered if his admission had been called for. He'd heard that Keefer's command had been less formal than usual, to lubricate interaction between the Astry personnel and the civilians. Green's normal instinct was to follow a rather old set of cardinal rules for leadership, among them never admitting ignorance or weakness to one you command. If informality didn't work, would a hard-nose attitude do the trick? Personally, he disliked the prospect—but professionally speaking, it was a strong possibility.

The launch which carried them down the canal was padded with fluid-filled plastic bags. They lay back on them, breathing heavily in the rigorous gravitation. The water churned black and oily, leaving an unfoamed, unbubbled turbulence behind the launch. Berker supplemented the automatic guidance system. In a few minutes they were on the open Ganset Sea. The wave-vibrations grew heavier and the boat trembled. At this gravity each ripple was a heavy blow, the equivalent of a much larger wave on seas less tightly bound. Green forcibly stilled a tinge of nausea and asked questions to keep his mind occupied.

He'd studied the crustal oxygenation cycle for several hours in the

library of the ship which had delivered him to Sun-Planet, but his understanding was still incomplete. Berker explained the chemical mechanism which allowed the crust to release oxygen when heated by the mantle, and the reverse process by which the air was adsorbed in the venting cracks between the crustal shields, to be recycled and purified in the chemical furnace of the mantle. The mantle beneath the shields rested, in turn, on the super-hot gases of the boundary layer. Beneath the boundary layer was the fusing-hot core of the world. It was all delicately stabilized by the pressure of gases and radiation rising, crust and mantle suppressing, and other checks and balances incompletely understood.

"Kerith Post keeps the crust under scrutiny," Berker said. "Haven't had a good-sized eruption for ten years, but the Secondary Northeast Shield has decayed recently, and that might cause trouble. Real problems come when the bounded seas wear through and water gets under the shields. That's what caused the polar explosion twenty-five years ago. Dust and ash covered most of the southern hemisphere for three years. We damned near had a vent of the boundary layer there, and I think that would have meant the end of Sun-Planet. Loytnant Keefer then had a sea-wall erected which would bind in the oceans more strongly

—that was twenty years back. It wasn't needed; the mantle crystallized along the rim of the shield and picked up something from the air. Turned right into crust, five times higher than our wall. Funniest thing you ever saw."

"Sun-Planet is more stable than we give her credit for," Margul said. "She was here a hundred thousand years before us, probably will last long after we're gone."

The launch turned north and a cooler wind from the west swirled around them, carrying the dusty smell of the crust and the rich, sweaty odor of the hot beaches below Kerith Post. "The Darks built well," Berker agreed. "But they were too humble for their own good." What Sun-Planet's creators had looked like, or where they had come from, was still a mystery. They had left no clue to their own nature, nor to why they had built the world in the first place. The setties called them "Ones-Without-Taste," which translated, with emphasis on the most important human sense, as "the Darks." The Perfidians were similar in hiding their nature to outsiders, but they were not related to the Darks—that theory had been laid to rest a century before.

"Water, five kilometers ahead," Berker said. The Darks had left few overt structures on Sun-Planet. The most important to settie researchers was called Water. The setties worshipped it as well as living in it. As

the launch approached Green could see why.

Water was a mountain of semi-transparent tubes and bubbles and endless labyrinthine capillaries formed from the crustal substance. It looked like a scuff of foam raked from a tub of detergent, then shaped into rough, rounded geometric forms, and placed in the middle of the Ganset Sea. It seemed volcanic but there were no good theories as to how it had been shaped. Seawater, sucked up by capillary and chemical actions still being studied, filled it from top to bottom, with occasional air bubbles and low-pressure pockets. Most of the tubes were wide enough to admit the largest setties.

From a distance, it resembled a child's sculpture made of dirty snow. But as the launch fell beneath its shadow, the dirt-color resolved into subtle browns and sea-greens. A human habitation had been constructed on the southern side, where a dozen tenders lived and worked with the setties. A dock extended from the building, with a bubble-like plastic canopy braced above the launch slip. The vessel hitched itself to the dock. Struggling a bit with his MAS, Green followed Berker and Margul into the building's rounded doorway.

A black-haired boy, about fifteen years old, with wide green eyes and clean, sharp features was reading a tapas pad as they entered. He switched the device off and got up

from his seat. The room was counter-gravitated, as were most human quarters, and much more comfortable than the outside. Green breathed deeply and unhooked the braces on his MAS. Berker and Margul stripped out of theirs more gracefully and left them standing near the door. The boy smiled a greeting.

"Herbert Fromm, this is Commander Green," Margul said.

"Good to have you with us," Fromm said. "You're here for a tour of Water?"

Green nodded and looked around. The room was spare and tacky-looking. Its plastiform walls had not been resurfaced in some time. The cracks and chips gave it an abandoned look. "I'm serving my apprenticeship to these helpful gentlemen until I g-get my steady legs."

"Takes a while for someone not born here," Fromm said. "I'm on visitor watch, not very important most of the time, but it seems I've hit interesting duty today. May I act as guide, gentlemen?"

Berker nodded. "First, is Maday where we can meet and chat?" Bethanie Maday was the leader of the tenders in Water.

"Not here. She's at the Broken Level working with a party of young tube readers. We'll probably see her on the tour. Pardon a second—I'll get my MAS and be right with you."

The room echoed a little, and

made Green think of the deserted military towns he'd commanded twenty years ago as a young JG on Old Mao. Those quiet green halls and scuffed floors were almost exactly matched here.

Fromm returned and led them down a corridor. The walls abruptly ended and they were inside Water, standing in a dark tunnel. The tunnel material had been bevelled to make a platform. Beyond the edge, water quietly plashed and gurgled.

"We'll have a tuberider here any moment," the boy told them. "You won't see many settlers coming in this way. There are too many bubble and pressure spaces this side of the mass. Their entrance is on the other side."

A grey shape with bright lights on its snout cruised up to the platform and surfaced. The tuberider was a metal cylinder with three evenly spaced wings, one of which served as a conning tower. Rubber stripping cushioned the end of each wing. A hissing stream of bubbles flowed from the rear.

"This one is piloted by Sandra Neps," Fromm said brightly.

"Mr. Fromm's fiancée," Margul explained.

They stepped down into the tuberider, hauling their suits after. The hatch swung shut with an ear-pressing *plonk*.

"Take you anyplace, gentlemen?" Neps asked, turning in her conning bubble to smile at them. Fromm introduced Green, and Neps

held out her hand. "Pleased to meet you, Commander. Looks like you've had a hard day."

Green felt irritation that it was so obvious. "And it's just beginning," he said. "My preparatory fitness sessions didn't last long enough, I'm afraid."

"I've always wondered about the MAS's we use," Neps said. "There has to be a better design."

"Nothing as flexible," Berker said, squeezing past a bank of equipment to take a seat near the bubble. Fromm moved past and sat in the seat across from him. Green took a seat next to a broad, thick port. He was near enough to the front to look through the bubble and see where they were heading.

"I haven't worn one often enough to get used to it," he said. "The main bother is hauling it wherever we go." He stashed it in a special cabinet and strapped himself into the seat, carefully following the instructions on a metal plate under the port. He adjusted the padding wherever it touched his body, and found the position surprisingly comfortable.

"Won't be much to see for a few minutes, so relax," Neps said. "Here we go."

The tuberider moved ahead with a gentle whine. The ride wasn't smooth, but it wasn't rough enough to make Green's stomach rebel, and he was thankful for small favors. His hands automatically gripped the seat arms as the tuberider angled

up. "We won't hit an angle greater than sixty, though we may roll one-eighty, and if you. . .there. . ." Neps reached back to point. "Mr. Berker, show him where the unlock switch is? There. Press that and the seat will swivel to take up most of the angle." The seat swung free and he relaxed his grip.

The view outside his port was dark, with a faint glow from the headlights beneath the conning bubble. The walls were evenly pocked, like the surface of a golf ball. He craned his neck to look out the front, and saw a section of tunnel brilliantly illuminated, with swallowing darkness beyond the range of the lights.

"The higher we go, the thinner the walls become, and the more transparent," she said. "Down here, they're about thirty feet thick. In a few minutes we'll be near the middle. Of course, it never gets very bright outside anyway, but the higher we go and the closer to the outside we get, the more light will filter through. We get eerie effects in here sometimes."

For fifteen minutes they rode level, bucked about in strong currents. The wings provided effective but not very gentle protection when the tuberider struck a wall. "This is our steepest climb," Neps said, and the tuberider pulled back until Green had to look down to see the rear of the cabin. They cruised up a narrow capillary for another quarter hour before leveling off, as the tube

became wider and the water lost some of its turbulence.

"Oops," Neps said softly. "Looks like a skipperjack ahead. They don't get in here very often—must have snuck past last night during the power failure."

Green saw a pattern of silvery dots coursing ahead.

"Do you have a prod mounted?" Fromm asked.

"Not a long one. It'll have to do."

"Here's where you impress the commander with your expertise," the boy said. He chuckled nervously.

"Expertise, hell. I do this for a hobby. All buckled, gentlemen? We'll have to roll to prod it."

Tentacles coiled like tubes of crumpled plastic in the murkiness beyond the main glare of the lights. Seemingly random glints played along the fluorescent patches within the skipperjack's arms and body. "That's their talk," Fromm said. "They do it to each other like birds singing. A few biologists on Home Field claim they see language patterns, but they haven't come up with anything conclusive."

The eyes suddenly caught the tuberider lights and Green blinked at the reflected brilliance. They shone like two suns in the otherwise dark capillary. Then they vanished and he had an impression of powerful tail and fins flapping. Turbulence from the animal's backwash rocked the ship.

"Going away," Neps said under her breath. "I'll have to route it into another main tube or it'll get lost and die and make the water unlivable. Here we go, hang tight—"

The tuberider twisted until they were hanging from their seats. The compensators swung them around slowly. Neps remained upside down. "Herb, my straps are biting—dammit—could you put some spare padding around my legs?"

"Can't get at you," Fromm said.

"It hurts," the girl complained in a matter-of-fact tone. "I'm going to be black and blue."

"Can't help you," the boy said. "Bring us back around. You shouldn't hang like that too long."

"Thing's moving faster than we can. Okay. Can't get it here." The tuberider twisted about. "Ow. That hurts. Should have added the padding before I strapped in. I ignore those little things."

Berker grunted. "Call ahead. Looks like it'll take one of the two main forks. Don't they lead to the nurseries? There should be settle guards up there—wouldn't want a skipperjack in the nurseries."

Neps made a call with signal keyed through the translator. A blast of sound pounded Green's ears, then reverberated up the tube. Echoes came back in ghost groans. A few seconds later, the twitter of distant replies reached them. The electronic converter boosted the signals and the translator replied, "Understood. Acted upon."

Green watched the last glimmer of the skipperjack as it disappeared around a bend.

"We're going to turn left about two hundred meters from here," Neps said. "Then we go up another fifty or sixty meters and we'll come out in the pools at the Broken Level. Sorry about the interruption.

The tuberider followed its indicated course and Neps brought them up to a surging, rain-speckled surface. The vehicle broke through and wallowed in the wide mouth of the capillary, stabilizing as gyros activated. She jockeyed it into position and metal clamps lifted the tuberider gently out of the water. The hatch popped and swung open, and Margul stepped out first. Berker

followed, then Green, who came up abruptly, banging his head against the outstretched hand of a woman. He dodged and smiled apologetically. "S-sorry," he said. "Didn't see you." The woman helped him out onto the buffer platform, rubbing her fingers.

"No harm," she said. "I haven't met you before, so you must be Commander Green." Fromm handed out the MAS's, and the woman helped Green climb into his. She was about Green's age, with tight-packed hair and a cleanly molded face, primly wrinkled around the mouth but not unattractive. "I'm Katrina Korliss, a tender. Glad to have you with us, Commander."

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"F-fascinated to be here," he said. The suit began to amplify movement and he relaxed a little. "Mr. Berker and Mr. Margul are guiding, and Ms. Neps brought us through a tight spot."

"I flubbed it a little, Kat," the girl said. "Deserve to have my wages docked."

"We'll consider it," Korliss said. "Herb's along for the ride, I take it. Who has visitor watch?"

"Nobody else coming today."

"Anxious to join in the excitement? We won't dock your pay too much, either. As you see, Commander, we don't run a tight mountain here. Our discipline is applied in other directions."

"Katrina is one of our most experienced tenders," Berker said. "She was a fine wife to me, ten years ago."

"Mr. Berker has gone through a good many tenders during his stay," Korliss said. Green wondered what there was about the man that attracted anyone. Perhaps his thinness. He wouldn't be such a burden in bed.

Green looked around the opening where the tuberider was moored. The Broken Level was three kilometers above the surface of Sun-Planet, and the air was somewhat rarefied, forcing him to breathe harder for what he needed. The MAS couldn't supplement an internal activity like respiration.

"Gentlemen, we have a shed over here where you can rest. This

pull is rough on newcomers. How are you adjusting. Commander?"

"Slowly," Green answered.

"You stutter, I understand," Korliss said. "Used to stutter myself."

Green felt his stomach muscles tighten. He wasn't used to such familiarity, especially about his personal problems.

"How did you cure it?" he asked.

"Setties gave me linguistic therapy. Turns out I had a speech program maladjusted, here," she tapped the left side of her skull. "I'm more right-handed now, too. Used to be a complete southpaw. And you?"

"Still a lefty," he said. Therapy had been available on almost every world Green had lived on, but something had prevented him from seeking outside help. *It's my problem*, he told himself. *My dichotomy*.

The Broken Level was a horizontal slice taken out of Water sometime in the distant past, leaving three flat plains where the capillaries popped out into open air. It looked like a field of craters, or the magnified xylem of a tree, each hole filled with rocking, sloshing water.

Some of the holes were a hundred meters across, signifying enormous tubes passing through the bulk of the mountain.

He saw two setties rolling and spouting in one of the pools. Their spray had a curiously flat, leveled-

out look, caused by the greater gravitation.

"This way, Commander," Korliss said.

They went to the shed, a small plastic cubicle supplied with counter-gravitation, and removed their MAS's. He was beginning to be adept with the suits, catching little tricks from the others on quick and easy unstrapping. A food unit stood in one corner, and Korliss offered refreshments to everyone. A small breakfast was served when the orders were in.

When they began to eat, Korliss asked him if he minded discussing business over food. "The settlers would consider it a heinous breach of ritual," she said. "Of course, their eating is much more complicated than ours."

"I don't mind," Green said. "Time is time."

"Then I have a question to ask. How much longer until the Perfidi-ans start pressing us again?"

"Ab-about a year."

"Is that a firm figure?"

"Fairly. The Hafkan Bestmerit people who still have diplomatic ties with us say the Season of Regain is due about that time for them. It's the closest guess anyone can offer."

Hafkan Bestmerit was the only mercantile consolidation made up entirely of non-human species. Its dealings with the Combine, which served as overseer to the consolidations, were notoriously unsteady.

"What can we expect when they do come?"

"We'll try to evacuate before then," Green replied drily.

"And if we don't get a chance to evacuate?"

"I'm not open to unlikely speculation, Ms. Korliss. But for the sake of argument, we'd be physically safe. Sun-Planet means very little to them as political and territorial gain. If anything, it's more inhospitable for them than it is for us. One of the few things we know about them is th-that their native world has a gravitational pull less than Earth's."

"I don't feel reassured, Commander," Korliss said.

"It's not my place to be reassuring. I'm here to learn wh-what I c-can."

"Then let's get started," Korliss said. The breakfast was barely finished. "Herb, Sandra—put out a general call for two patris."

The two suited up and left the shed. A few minutes later, Green heard muffled booming sounds through the walls. Korliss suggested they go to the pools. Green put his fork down with a frown as he gazed at the scraps of synthecarn still on his plate. He felt more like a politician than an Astry officer. He put on his MAS, finishing last, and joined the others by the largest pool in Broken Level. Neps and Fromm walked back and forth on the opposite side, talking in whispers. The misting rain carried an electrical smell with it. Green glanced up to

see a brief reddish flash overhead. Sun-Planet's atmosphere was comparatively shallow, and at altitudes as low as twenty kilometers, weather and auroral phenomena mixed in interesting ways.

Two setties surfaced in the pool and lifted their heads out of the water to see clearly. It was Green's first good look at the creatures, though he had seen holos. He was a little shaken. Their long, flat-topped heads and bowed mouths filled with glistening yellow teeth were nightmarishly vicious-looking. Their eyes were small and piggish, slightly glazed as though by cataracts. Callosities formed bumps along the top ridges of their snouts, whitish and crusty, with an individual pattern of bumps for each settie. The patterns provided the basis for their names. Beneath the lower jaw, rills of wrinkled skin resembled the deck of a wooden ship. They were black for the most part, with a strip of white along the forward edge of their dorsal fin, and greyish tones running in splotches from their underjaw to their articulated flippers. The genetic engineers who had designed them could have done better on aesthetics, Green thought. Had any whales on Earth ever been so ugly?

"*Voilà*," Korliss said. "Two patris. You'll notice they're a few meters larger than the normal run of setties. Patris are like tribal elders in some ways—they're leaders of packs. Most setties belong to at

least two packs, and there are around seven or eight thousand packs, each with a specific duty and skill. The pack networks cover most of the waterways, and that means, essentially, that they cover most of Sun-Planet." She produced a portable translator and lowered the pick-up cable into the pool.

"We were called," the box hissed. "Is that White-Neck?"

"It is," Korliss replied. The translator murmured into the pool. "That's their name for me. Who knows how they actually see us, hm?" She raised her voice. "We'd like to arrange a conference as soon as possible—a briefing for the new commander of the Station."

"Who should be there?" the voice asked. Green couldn't tell which of the setties was talking. The groaning and clicking sounds in the pool seemed to come from both.

"Bring F-Nose and Hack-Fin with you to Top Level."

"We will meet in an hour," the voice said. With a splash of spray and a surge from their tails, they vanished.

"F-nose is the coordinator for the Processing Pack in Water," Korliss said. "He does most of his work with Maday. She's at Top Level now, in conference with a group of Readers who've returned from the North Pole. We'll meet her later, but she might be too absorbed to spend much time with us."

Green nodded. "How many setties are there in Water?"

"About thirty thousand," Korliss said. "This is Grand Central for all information gathered around Sun-Planet. It might be the biggest library in the known Galaxy. At any rate, it's unique—no books, no tapes or files, only setties, each chock to the brim with facts about the Dark patterns."

"The tuberider is re-charged," Neps said. They boarded the vehicle and sank into the darkness of the capillary.

"I'm going to give you some random information about setties," Korliss said as they rocked gently in their seats. "I'm sure you've heard some of it in your briefings off-planet, and in your talks with Mr. Margul and Mr. Berker. But I need to know that you're aware of some things, for my own peace of mind."

"Go ahead," Green said.

"First, a question of my own—why were you chosen to come here?"

Green was caught off-guard. He recovered quickly—it was close enough to a direct challenge to his authority that trained reflexes took over. "Because I'm the only man the Combine Astry could find in its ranks, still alive and commissioned, who'd dealt with the Perfidisians on a first-hand basis. I know them as much as they can be known."

Korliss nodded. "The setties call them the Ones Who Hide. Have you ever seen one?"

"Nobody has, to my knowledge.

I've also worked with twenty-three different intelligent species during the years I've been a duty officer. M-my intelligence and adaptability are unsurpassed by anyone in my rank. I'm a tough and reliable administrator. Does that answer your question?"

Berker leaned over from his seat. "Ms. Korliss is known as a tough nut. She has very few inhibitions about rank and confrontation. If she's gauche, forgive her. She—"

"That's enough, Billie. I'm sure the Commander understands. Sun-Planet is only partly controlled by the Astry and the Combine. The rest is GASENs." The Galactic Social Engineers had faded into general obscurity after their overall failures seventy-five years before. But they still held onto their successes—and Sun-Planet was one. They were not directly allied with the Combine now, though they had been chartered as a Combine organization. "We have the responsibility of protecting this world, and the non-human citizens on it—"

"And human?" Green asked. Berker looked like his stomach pained him.

"Of course," Korliss said. "But I feel more responsibility toward the setties than I do toward humans. I'm just warning you where my emphasis lies."

"Many of the tenders feel this way," Margul said. Berker nodded.

"My own emphasis has to be just the opposite," Green said. "I'm

here to protect human interests.” That was it, he thought—the ideological lines were drawn. He knew which side he was on officially, but there were too many factors for an easy personal decision. The setties had been created, ultimately, to serve human interests.

Korliss bit her lower lip thoughtfully, looking at him with that air peculiar to women—a sizing-up which inevitably brought in questions of masculinity, onenessmanship and moral rectitude.

“Let’s get to the information,” she said. She produced a small paper notebook from her pants pocket and leafed through it. “First—do you understand how the setties were created?”

Green said he did. “I could stand having some details filled in, however.”

“They were brought here twenty years after the discovery of Sun-Planet. They were genetically tailored from tissue samples taken from several species of cetaceans—ocean-going mammals, whales. Most aquatic mammals, except for dolphins and some seal species, died out by the end of the twenty-first century—combined cultural shock and human destruction. But tissue samples were kept frozen in case anyone ever saw fit to reconstruct or grow them from eggs *in vitro*. The genetic engineers who put the samples together designed the setties for endurance, strength, intelligence and a certain bloody-

mindedness. They’re not an easy lot to work with—but they’re the ones most likely to survive on Sun-Planet. And they were put here with a specific task in mind. Their culture was designed and fitted accordingly—”

“Sounds like an overcoat,” Fromm said, smiling to show he couldn’t pass up the chance.

“All things come clothed in culture,” Green said. “John Dewey thought so, anyway.”

“Their job,” Korliss said, not missing a beat, “is to investigate, gather and correlate the information the Darks left on Sun-Planet.”

“So far, so clear,” Green said. Korliss pursed her lips and turned a page in her notebook.

“We still don’t know why the Darks built Sun-Planet. Our best guess is they were storing information here. But why they chose this design for an information bank is beyond us. Structures like Water and the Organic Shields are vast coded systems which we have yet to break. Here.” She unbuckled herself and struggled with the tilt of the tuberider to come nearer to Green’s port. “Neps, some light starboard please.” A lamp switched on below the port and the golf-ball indentations of the wall became clear. “These were left by some form of animal life, probably not the Darks themselves. We think the Darks may have done their own genetic engineering, and that Water could be the skeleton, or shell, of

one such life form. If so, it must have been an incredible thing—or colony of things. These dents in the wall are more than just the marks of tube-borers, or whatever the inhabitants were. They have a sense and pattern, a precision and frequency of placement. Somewhere in all that, there must be millions upon billions of bits of data, held in the combined factors of depth, density of pocks per unit area, frequency of sinusoidal fluctuations . . . They are not just natural or purely random. There are five packs mapping and studying the designs in these tubes. We call them Readers. Settles are perfectly designed for such studies, since they can stay submerged without air for two hours, don't need lights to guide them, and can read the patterns by sonar. They also have what amounts to eidetic memory. That memory extends not only to whatever they hear and taste, but to their own thoughts and reactions; they can remember what they thought at any given moment in their lives. Don't ask me how they manage it—I've concluded the whole thing is humanly inconceivable."

"That's another reason I was sent here," Green said. "O-one of my specialties is languages and codes."

"Good. You might be the first commander ever to show interest in our borer-tracks." She turned another page in the notebook. "Okay. Next—information storage in the Organic Shields. About one

out of every five crustal plates is made of complex chains of organic molecules. Some of these shields are intact enough to retain a pattern of information storage. The rest are now a kind of homogenous plastic goo. Most of the intact shields border bodies of water, and some are actually underwater. Settles can detect the presence of intact shields by taste. They can't smell, only taste—and taste is one way they communicate, through fecal discharges and pheromones. They can tell us about the molecular arrangements within the Organic Shields as efficiently as a good chemical analyzer."

"There was very little of that in the briefings," Green said. "Has anything been deciphered yet?"

"No—but there is a linguistic similarity between the arrangements of pocks in the tube walls, and the arrangements of molecules. That's what the settles tell us, anyway. Some of our computers claim to understand what they're talking about. I confess I don't."

"We've been having trouble lately with settles in the area of the Osko Sea," Berker said. "They claim the messages in the shields were meant especially for aquatic creatures—themselves, I suppose. Not for humans. They won't cooperate with us now."

"Billie's right. There have been problems. But they're not important yet. We've got enough work to do in the vicinity of the Ganset Sea to

keep us occupied for a lifetime. Now—I think I’ve covered enough for the moment. Any questions?”

“Yes. Wh-what do you expect to learn from the information?”

“I never met a Dark, Commander. I won’t even venture a guess.”

“Getting close to Top Level,” Neps said. “We’re going to surface in about a minute.”

With Fromm’s aid Korliss strapped herself in and put her notebook in a plastic shoulder-bag. The water broke around them and the tuberider rocked in its own backwash.

They were inside a hollow dome. Softly glowing lamps circled the walls, one of the few artifacts set-ties tolerated in their own domains. “We’re about six kilometers above the crust,” Margul said as he puffed and wiped his damp forehead. “Outside it is very cold and the air is thin.”

“Hollows like this exist throughout Water,” Korliss said. “Sandra, have the clamps pull the tuberider completely out of the pool. The set-ties prefer not to hear its presence if they can avoid it. The . . . uh, Commander?”

Green was examining the pock-patterns around the inside of the chamber. “I’m listening,” he said.

“The hollows tend to congregate more toward the outside of the structure. They have pocks just like the tubes, as you see.”

“When are the setties coming?” he asked.

“Any time. Sandra, could you

get the translator from the tuberider?”

“Yes’m,” Neps said with a curtsy.

“Smart, she is,” Korliss murmured. “I hope you don’t have similar discipline problems, Commander.”

It looked more like cameraderie than lack of discipline to Green. He envied the tenders. “Mr. Berker and Mr. Margul have been very helpful in hiding my ignorance,” Green said. “In fact, you’ve all been extremely helpful.”

“Charming,” Korliss said, smiling as she looked him over. “Let me know if being candid helps you as a commander. I’ve often wondered.”

“Setties coming,” Neps said. She hooked the translator to the poolside. Distant clicks and groans echoed in the hollow dome.

“What are you going to ask them, Commander?”

“Their estimate on how long before they can summarize their findings.”

“Tall order, even for setties.”

“Doesn’t hurt to ask.”

“No.”

“Where’s Maday?” Berker asked. “We were supposed to meet her here.”

“She could be swimming with them,” Korliss said. “Patience, Billie. A lot’s been going on lately.”

The pool rippled, then rose and sloped over the platform. Fromm clapped his hands sharply, twice,

then snapped his fingers. The setties turned their left eyes toward him and inclined slowly in his direction.

"They acknowledge, Kat," he said.

"Is Maday in the tube below?" Korliss asked.

"She is not,"

"Where is she?"

"She is consulting, and will speak to you when her work is done."

Korliss squatted by the edge of the platform and motioned for Green to join her. "F-Nose and Hack-Fin, this is the new commander of the Station, Kenneth Green. He has some important questions to ask about your studies." The small, clouded eyes turned slightly and

Green knew he had his audience.

"Two major questions at the moment," he said. The translator trilled in the water. "First, we need to know what you've learned about Sun-Planet, and how soon you can reach some useful conclusions. And second, we need to know your intentions should the Perfidisians return and replace us here."

Berker looked up in surprise.

"That's not discreet, Commander," Korliss whispered.

"I haven't got time for discretion."

The translator switched with a faint click. "This is F-Nose speaking. Welcome to Sun-Planet, Green. May we work well. We can answer the first of your two questions. The

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second has not been decided yet, and at any rate we are not the ones to answer it. The woman Maday is conferring with those who can answer, and she will inform you." Green could pick out the F-shaped callosities on one settie's nose. "For our answer to your first question we require—much against our instincts, but it is necessary—the presence of a tool called recorder. We do not think you have the capacity to absorb all, accurately, in the short time given."

"I'll get one," Neps said, heading for the tuberider.

"Looks like they've been waiting for this," Berker said to the others. "Recorders are especially repugnant to them."

Korliss saw Green's puzzled expression. "What Billie means, Commander, is that they must've been gearing themselves to answer your question for some time now. Maday might have known about this, but I didn't."

Neps returned with the recorder and attached it to the translator.

"Hack-Fin and the Patris will pass on what we know about the patterns of Water and the Organic Shields," F-Nose said. "I will give a summary. The recorder must take down only the full report without interruption. You will spend more time than usual translating this, later, with larger tools. It is very complex."

"Adjust the recorder, Sandra," Korliss said.

"All set," Neps said when she was finished.

The water washed back and forth in the tube as the setties re-arranged themselves. Hack-Fin and the Patris began a susurrus of clicks and squeals, barely audible in the air.

"We have translated some of what the Darks left in the tubes of Water," F-Nose said. "We know that Water and the Organic Shields are similar to reference libraries, storage areas for the information necessary to translate other coded sources."

"Other sources?" Green asked.

"All of Sun-Planet is meaningful," the settie said. "This we know from understanding the language of Water. There is information stored in the Organic Shields, and there is information stored in complex wave motions and . . . I apologize, the words are not immediately available which can fit human language; I will make analogies—there are flows and sinks and transfers within the mantle which cause the crustal plates to sing, and information is stored in these motions. There are other parts which we do not yet comprehend. We do not know how much time it will take to understand and translate all of it, but the major breakthroughs should be soon, a month or two. Hack-Fin is giving you what we know already. Taking useful knowledge away from Sun-Planet is father in the future, a year or two, perhaps longer."

"We may not have that much time," Green said. "The Perfidians are almost certainly going to take over Sun-Planet within the next year."

"What do you expect us to do, Green?"

"Make it known they are returning. You'll have to establish a policy, and let us know what the policy is."

"We know, and Maday will give our answer. Hack-Fin has finished, and the Patris will be done in the next few minutes. We are now bound for work elsewhere in Water." F-Nose and Hack-Fin sank into the pool. When the Patris had completed their segment, they retracted and the pool was quiet. Neps withdrew the recorder from the water.

"Do you know how important this is, Commander?" Korliss asked, handing the tapas cube to him.

Green did. The thought of the consequences made him ill.

III

Maday was not available within the time limit Green had given himself for work outside a protective field. He was still very new to Sun-Planet, and it would be easy, even in an MAS, to overstrain himself. Neps returned them to the exterior, and Berker and Margul accompanied him to the Station.

In his quarters, he took an air-

pressurized shower and put on a light uniform, dark blue shorts and a sleeveless vegetable-fiber shirt. He went to the third floor.

A JG named Davis was stacking the paper offprints of the settie recording as the computers on the floor above translated it. "We have four hundred pages for you already, Commander," he said, holding out a bound pile.

"Thank you," Green said. "How much more?"

"They're about halfway through. This was from a ten-minute recording?"

Green nodded.

"Setties must have been running ten channels at once," Davis said, whistling. "It's amazing the overtones and interphasing they can do when they put their minds to it."

"I understand from Ms. Korliss that their speech takes fifteen dimensions to chart."

"That's right, sir," David said. "About as many as a standard genetic distribution diagram."

Green had seen a computer schematic of settie speech before, and been struck by the triple-spiral complex the screen had shown. Now he understood its full use—a good-sized literature could be passed from one settie to another in a few hours. Centuries ago, terrestrial whales had broadcast entire song traditions in much the same way.

Now the whales were gone. And Green was afraid, when this stack

of papers reached the Combine, that something similar would happen to the setties.

"Next batch, sir," Davis said. The JG was about thirty years old, with black hair and a bump of a nose on otherwise regular features. His duty uniform was rumpled—excusable near the end of a watch—and despite his cheerful tone he looked weary.

"Have you looked through any of these, Mr. Davis?"

"No, sir. It's not allowed."

"Of course not. This is the only hard copy of the translation?"

"Yes, sir. One set for yourself."

"I want the computer room staff to lock the databanks and seal them so only I can release them. Are they the last ones left on watch on these floors?"

"Yessir. The rest are off-duty."

"Give them twelve hours liberty and thank them for the extra time."

"They'll be obliged, sir."

Green took the text with him to his quarters. Before he passed the information on to the Combine, he wanted to make sure he understood most of it himself. If he caught something erroneous or misleading, whether caused by computer misinterpretation or human bungling, it would be better to correct it at the source, and not through a haze of later bureaucratic questions.

He read through the first fifty pages in ten minutes. It was a straightforward introduction. The prose had an odd flavor, but it was

clear and concise. If he had time, he vowed he'd run a standard linguist's reference test through the computers to see what they "corrected," distorted, or left alone. He'd have done it even before running the recording through, but more important problems prevented him. He regretted not having enough time—it could lead to sloppy work and thinking. He regretted being sent to Sun-Planet without a good, three-month understudy program behind him, to strengthen his self-confidence. He felt like a fool half the time. Well, he thought, now was his chance to prove himself.

The next fifty pages were more complex. The computer had annotated much of the text, explaining the differences between settie and human scientific terminologies. He spent an hour on it. It wasn't terribly difficult.

The Organic Shields contained long strings of organic molecules that played a role in the biochemistry of the life-forms the Darks had placed on Sun-Planet. That much had been guessed a century before. But just what role the molecules had played was a more difficult question. Now the setties had the beginning of an answer. The creatures had used the long molecules as chemical transmitters in their nervous systems. But it was inconceivable that the molecules could have provided a uniform stimulus, as chemical transmitters did in ter-

restrial animals; the molecules were too complex for a simple binary, "fire/no-fire" response. It was apparent the stimulus had been controlled and gradual, with the chemicals serving as both transmitters and a variety of memory. This led the setties to speculate that the creatures—whether or not they'd been the Darks themselves—had used taste as a means of communication.

Green closed his eyes for a moment. That was all he needed to know about the Organic Shields for the present. He skipped until he found the chapters on Water.

They were something of a disappointment. Water had been more complex at one time, and may have contained information which duplicated the material in the Organic Shields, in a condensed form. The setties didn't suggest a comparison, but to Green a card-catalog or tape index in a library seemed analogous. With the death of the tubeborers, that function had ended. The pock-mark patterns in the tubes had acted as guides to the tube-borers, and also as something similar to graffiti, though the setties couldn't find the exact words for the concept. That unplanned, random sort of information was being studied in the hope of finding how the systems interacted, and what sort of creatures worked them.

Green was four hours into the text, and two hundred pages, when he put the stack down and rubbed

the bridge of his nose. He was exhausted but he couldn't afford sleep. There was too little time left for a decision. Was Sun-Planet a scrap-heap of useless knowledge, or something more? The elaborate measures used to store the information suggested secrecy, and to the Combine Administers, that would smell of importance. Humans had the Pandora tendency deeply ingrained. He had little doubt the setties would be killed if the Combine considered Sun-Planet important, and if there was a chance the Perfidisians would take over before humans had extracted the knowledge.

As an officer and representative of the Astry, rather than a temporary civilian position-holder like Berker or Margul, he had been given all the details about Kerith Post. It was more than a crustal monitoring station. It was a repository for twenty missiles, each carrying a warhead filled with pellets of crystallized tailored plague virus. Each pellet carried enough virus to kill a tenth of the setties on Sun-Planet.

If the missiles were launched, only the giant skipperjacks and the plankton would remain, and even they wouldn't last for long; the loss of an important part of the delicate ecology would soon bring all life on Sun-Planet back to ground zero. By law, artificial ecological systems had built-in safeguards which automatically prevented uncontrolled evolution.

Within a few decades, Sun-Planet would be sterile.

The papers slid off his stomach onto the floor. He reached down to pick them up and lifted his eyes at the sound of the intercom bleeping. "I'll answer," he told the vox activator.

"Commander, this is Berker. Sorry to interrupt your sleep—"

"I w-wasn't sleeping, M-Mister Berker. What's up?"

"Communications has a message from an Astry ship on the systems perimeter. The Perfidisians are broadcasting a warning. We'll get it in a few hours—they're sending it across status geometry. They request all occupants of worlds along the Eridanus Line to evacuate. They'll be here in two weeks." The message had to be directed at Sun-Planet; there was no way a status-geometry signal could cover the Eridanus Line in time to serve any purpose. The Perfidisian ships had probably transmitted from a few light-days away.

"Commander, should this be kept secret for the moment?"

"No, Mr. Berker. Home field receivers will pick up the message anyway. Call a meeting of all officers and civilian reps for an hour from now. I want Home Field reps, too—and get me the tenders Korliss, Maday, Fromm and Neps."

"Yes, Commander. Is that all?"

"For the moment, Mr. Berker. Thank you."

"No thanks needed for bad news,

Commander," Berker replied quietly.

He switched the inducer to forty-five minutes of accelerated sleep. Then he lay back and closed his eyes. When the signal buzzed he was still tired, and his eyes ached.

IV

The meeting room was spare and utilitarian. The chairs were thinly padded and somewhat uncomfortable, the lighting white and harsh. People were meant to be ill at ease here. The room was used only for trouble talks. When Green arrived, half the people he'd requested were present. The others, Margul explained, were on their way and would be arriving in ten or fifteen minutes. The Home Field reps would be the latest.

"Well, the ones we need most are already here," Green said. "Could you point out Maday?"

Margul indicated a woman sitting at the table. She was young, with a thin, pinched face and hair cut short. Her skin was almost white. She was looking down at the table-top and manipulating something small with her fingers.

Green took his seat at the head of the table and requested a playback of the Astry's message. When it was finished, he gave a quick outline of what the setties had reported on their work with the Dark artifacts. He then turned to Maday and asked her what the setties had decided.

She straightened her shoulders

and folded her hands on the table. "They've decided not to work with the Perfidisians should they take over Sun-Planet. They've had experience with them and on the whole they prefer humans."

"Have they any p-plans for organized resistance?"

"No resistance. Things will proceed normally, but they won't let anything they know be passed on."

"All setties are unanimous about that?"

Maday hesitated. "I don't know."

"You're doubtful about the Osko Sea setties?"

"I haven't heard from any of their packs."

"You understand how crucial this is, Maday?"

"I do, Commander. I'm willing to bet the Combine Astry has a quick scheme for the extermination of the setties, should there be any chance the Perfidisians will get access to the information stored on Sun-Planet."

"What can we do to avoid that, if it's true?"

Maday shrugged. "Setties are as complex as humans, if not more so. I cannot honestly vouch for every settie, much less for any group of setties claiming kinship with the Darks. I'm afraid the decision still rests with you, Commander."

"Do the setties have any plans for policing themselves, if the Perfidisians take over?"

"If you mean, would they be wil-

ling to silence the Osko Sea group, no. Setties are incapable of killing their own kind, or interfering with the beliefs of adult individuals in any way."

"Even if it should mean the end of all of them, and their work?"

"That's the way they operate," Berker said.

"Mr. Berker, what do you recommend?" Perhaps that would get a rise out of the tenders. Green could almost cut the air between Maday and the thin man.

Berker opened his mouth, then shut it. He shook his head. "I have to go along with the Combine's orders. For the moment, you're their representative. It's your decision."

Green felt his face redden. "You're p-putting me in a d-difficult position. I've worked my ass off trying to l-learn enough about Sun-Planet to be reasonably in-informed. I haven't reached that p-point yet. If I do not have your cooperation, we'll all b-be in very serious trouble. I might make the wrong choice. And it does boil d-down to two choices."

"Nobody asked for central authority under the Combine Astry," Maday said. "It was imposed on us."

"Nor d-did I ask to be sent here!" Green said loudly. He lowered his voice and bent his head slightly. "In your opinion, is the information c-contained on Sun-Planet of any use to an intelligent species bent on aggression and conquest?"

Maday waited for the others to speak before answering. No one did. "Yes, it could be," she said. "Any information can be turned into weapons, given the right frame of mind."

"Then I am fully justified in believing there's a possibility the Perfidisians will have access to information which can distinctly change the balance of their dealings with humans and other intelligent species?"

Maday nodded. Green was momentarily disappointed in her—either she was hiding behind a facade, or she was far less decisive than he'd been led to believe.

Berker leaned forward in his seat next to Green. "The Commander has the ability to destroy all the setties on Sun-Planet within twenty hours," he said. "It's a power Margul and I were not given during our brief command. Nor do we know precisely how he can do it—only that he can."

"The setties already know how it can be done, and so do I," Maday said. "There are concentrations of Astry personnel and computers in many areas across Sun-Planet. There is only one position made up entirely of computers, and that is Kerith Post on Laith Island. We assume that's where you keep your weapons. Specific disease activity is the quickest and most selective method of killing large populations. I assume you have vector mechanisms loaded with something

akin to pulmonary chancre virus, specific to cetaceans and tailored to setties."

Green was not surprised at the accuracy of her guess. "I'll be forced to release those vector mechanisms soon, unless someone can give me excellent and compelling reasons not to. Maday, I expect you've already discussed this with your settie contacts."

"With my friends and colleagues, yes."

"And they're willing to sacrifice?"

"Commander, style of living is all-important to the setties. They can't be as self-deceptive as humans. If they break their code of ethics, they literally cannot live with themselves. But I'm not certain you have only one choice in this case." She was struggling to say something; her lips were contorting, and her face was paler than before.

"What other choices do I have?"

"The—the Osko Sea groups occupy a relatively small area, and they're compacted. I—"

"Mr. Berker, is that feasible with weapons in open stock?"

"What, Commander?"

"Selective extinction of a settie population."

"No, sir."

"Maday, I commend your courage for making the suggestion, but it is not feasible."

"Do you know what we're discussing, Green?" Maday asked.



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“Genocide. Do humans have that right?”

Green’s hands were trembling and he put them under the table. “What we’re discussing is the p-possibility . . . the possible extinction of th-the human race.”

“The Perfidisians would never be allowed to go that far!”

The P-Perfidisians may not be controllable if they have access to the information on Sun-Planet.”

“You are willing to destroy—”

“Y-Yes!” Green shouted, his voice breaking. “Yes, I have that obligation, that duty to uphold my commands, no matter what they mean in terms of civilian morality! That may sound incredibly callous to all of you here, but it isn’t quite the same th-thing as a selfish desire to avoid trouble by obeying orders. My people, my race, are threatened by this situation!”

The conference room was silent.

“Then, Commander, from an aesthetic argument, who is more worthy of being saved, the setties or the—”

Green saw that Maday was close to breaking down, but his anger at her stupidity was too great to take frailties into consideration. His disappointment ran deep. In Maday, he had hoped for some sort of logical ally, someone who could work with him and with the setties, acting as a mediator, in order that some other solution might be found. Now his frustration exploded. “You megalomaniac bastard! You’d ask

anyone to make that sort of choice?”

Maday began to weep. Beside him, Berker was jerking strangely, like a puppet held by a spastic master. Margul held his head low, but was looking around through small eyes.

“I apologize,” Green said on an intake of breath. “I—God damn, I apologize for the outburst, not for the sentiment behind it.”

The door to the conference room opened and the remaining reps entered, looking around warily. They could sense the meeting’s highly-charged air, and were reluctant to intrude.

“S-sit down, gentlemen,” Green said to the men and women “We are finding quick w-ways to commend ourselves to hell.”

V

Fifteen thousand kilometers above Sun-Planet, four Astry ships orbited in close formation, waiting for the signal to begin evacuation of the human population. They were huge personnel carriers, each capable of supporting a hundred thousand people for a short time. They had been converted from colonizers and were about forty years old, approaching the end of a standard warper-ship’s lifetime. They were visible from the surface as bloated stars. Green watched them from the observation hall as they rose above the horizon clouds.

It would take a week to evacuate

the three hundred and fifty thousand humans, and the whole thing would begin in three standard days—about one rotation for Sun-Planet. A few would stay behind, including Green. They would leave later—or they might not leave at all. There was a possibility the Perfidisians would allow a provisional supervisory group of humans until all avenues of diplomacy were exhausted.

If things worked out as he planned, he'd be cutting things very close. But it had to be that way. Most of the setties had pledged themselves to their human overseers. That deserved more than quick and desperate extermination.

The ships twinkled in the heat rising from the cleft in the crustal shields. Green looked down toward the clouds to see the peak of Water.

He was expecting an answer from Myriadne any time. Coded outlines of the settie findings had been sent two days before. He was fairly certain what the answer would be—nothing to cheer Maday or anyone else. There were times when he hated his position. Hated himself.

He closed his eyes and thought about the pamphlet he had in his room. The youthful, green pioneer worlds, far from the inter-species disputes, begging for more human colonists; fresh starts, with ample land and enormous growth potential . . . They were too far away to even dream about now, but still the dream existed, another part of the dichotomy.

With it came the vision of a woman who would explore with him, bear him children far from the typical restrictions imposed on families. She would not necessarily be beautiful—Green knew he was no prize for handsomeness himself—but strong and loving and intelligent, the sort of beauty that overcame physical form, or glowed through it.

Instead, he was facing the bizarre, dark surface of Sun-Planet. Despite its reputation for instability, this world would outlast himself and many civilizations, even species. Living things were the instabilities, the unfaithful of time. All their problems were trivial. A memory of a similar feeling projected itself briefly and then eluded him.

"Commander," Berker called from the opposite end of the hall. "We have the reply, for your ears only."

He went to listen. Five minutes later, he left the communications center and told Berker to join him in his cabin. His plans were crystalizing. There wasn't much time left—a day or two at the most. He was going to take a final chance, and go to the Osko Sea to converse with the setties there. Maday had to go with him, and Korliss, Neps and Fromm. The older tenders were logical choices, but the younger two were more of a whim. Green found strength in their youth and straightforward affection, and he needed all his strength now.

Berker entered Green's cabin and listened intently as the commander told him his plans. Instructions would be left in the emergency orders capsule in Station Security. If he didn't return, it was Berker's responsibility to activate the vector missiles. Green was almost light-headed at the prospect of having something very nearly positive to do, and he put a call through on his intercom requesting the four tenders to return to the Station and bring appropriate equipment with them.

"I'm not sure this is wise, Commander," Berker said, following him to the locks. "You'll have to stay in your MAS all the way, and tuberider seats aren't the most comfortable places to be in a suit. But even so, you'll—"

"Get damned tired, I'm sure," Green broke in. "I'll just have to put up with it."

Berker looked upset. "That leaves everything in my hands if you don't get back."

"I'm not sneaking out from under it," Green said. He looked at Berker's downcast, lined face and smiled faintly. "As long as we can communicate, you'll need my command to start things rolling. Only if something happens to me—and Sun-Planet isn't all that wild—only then are you responsible. You're no more put-upon than I am, Mr. Berker."

"It's not a matter of being put-upon," Berker said, looking insulted.

"The hell it isn't. I know exactly what it is. All of this is on our backs now. You told me the setties would turn traitor given half a chance. Do you still believe that?"

Berker nodded.

"Might be a dangerous sentiment, Mr. Berker. D-don't jump the gun. If you d-do, remember—responsibility is a t-two edged sword." He cursed the returning stutter. "Depending on the circumstances, you'll be damned if you do, damned if you don't."

"I commanded the Station long enough to learn the meaning of responsibility," Berker said. "I'm going to communications to supervise the evacuation of Home Field, sir."

"Then good luck, to both of us, Mr. Berker. We're very reluctant bedfellows, believe me." Berker frowned without understanding, then turned and left. Green collided with Margul in the hatch to the locks. Margul apologized quietly, his small eyes squinting as he looked at the commander.

Green briefed him and told him to keep a careful watch on everything. Margul accompanied him to the dock, matching his long strides with difficulty.

"Commander Green," he said, "is it wise to give Berker such powers?"

"Berker's the only one I can give them to."

"But there is something you should know about him."

“What?”

“Berker worked with the setties for several years, but he doesn’t like them. He was a tender eleven years ago. The setties would not work with him because of his personality, and he had to come to the Station.”

“Will that cloud his judgement here?”

“I don’t know.”

“I’ve got to go to the Osko Sea, Mr. Margul. You are second in command only so long as you feel Mr. Berker is following my orders. I’ll brief you both thoroughly before I go.”

“Why not just pass it on to me, Commander?”

“The command?”

“Yes.”

“Because Berker has shown no signs of not being able to obey orders, and he is your acting superior.” Green looked Margul over sharply. “Or is there something else, Mister?”

“No.”

The locks were as warm and humid as ever. Green sat in the brightly-lit engineer’s booth, tapping his fingers impatiently on the small desk. The engineer stepped in and greeted him stiffly, pulling gum out of his mouth and sticking it in the disposal. “Tuberider’s coming down the canal now,” he said, looking over the displays.

Fromm escorted Maday into the booth. She looked at Green through tired, half-shut eyes, slightly

stooped, her hands limp by her sides. “Still holding out hope, Commander?” she asked, her low voice deceptively mild.

Green nodded.

“What are you going to do?”

“You’ll find out as soon as all the others are here.”

The locks opened and the tuberider entered, piloted by Neps with Korliss as a passenger. The vessel docked and the engineer gave them the okay to board.

“We have our orders,” Green told them as they climbed in and took their seats. He put his MAS on while standing in the hatch, then climbed awkwardly into his seat and strapped himself in. “We’re going to find out just how rebellious the Osko Sea setties are. If they won’t cooperate, we’ll have to carry out the second stage of the orders. But for the moment, we’re acting on a good-faith assumption. I’d like Maday to ask four setties to go along with us—those you think can communicate best with the Osko Sea patris. If one or more of them is also an expert on the overall meaning of Sun-Planet, well and good. The orders instruct us to investigate two artifacts we’ve paid little attention to so far.”

Maday looked across the tuberider cabin at him. “Which are those?”

“Wormways and Crooked Shield.”

“They’re tabu areas for setties,” she said.

"All the m-more reason to investigate. We don't have time to be diplomatic."

"The areas are tabu because they're dangerous," Maday said, still dead-pan.

"Yes, but there's no evidence they're *physically* dangerous. You should all be acquainted with Stefan Damal's studies on pattern-generated psychoses."

"I'm not," Fromm and Neps said simultaneously.

"We all have specific fear reactions," Green said. "They can be generated by c-complex situations, anything from nightmares to battles. They can also be generated subliminally by such things as smells, but we tend to consciously suppress these responses. However, there are culture-wide fear generators which can send some species into wild panic. Humans still react to stories of ghosts and demons. Most animals respond to varieties of fear generators, but aquatic animals are especially sensitive. Cetaceans on Earth evolved from land animals, but in their ocean environment they picked up the responses of sea creatures. The setties probably have similar reactions." He was usually good at reciting material from text without stammering, and the number of clear sentences he produced was gratifying. The material wasn't his own, after all—no dichotomy involved. "A pattern-generated psychosis is a response to continuous exposure to a fear

generator. A specific sound frequency might touch off panic because of association with wounded animals thrashing—or the sounds used by predators during attack. A baleine whale born in captivity and educated by humans will still be badly frightened if he hears vibrations associated with the swimming of killer whales—subtle sensations most of our mechanisms can barely detect. Visual and taste stimuli can also cause panic. Whole herds of whales on Earth used to beach themselves, and the reason wasn't fully understood for centuries. They were panicked by unusual ripple effects in the ocean surface, or by the dumping of garbage and industrial wastes—both of which triggered fear-responses."

"So you think the tabu areas are regions of pattern-generated fear?" Fromm asked.

"Sounds likely. They both have peculiar geological features. There might even be unpleasant combinations of organic molecules. Crooked Shield is crooked because of an upwelling in the mantle, and the whole area is hotter than normal—a kitchen for c-cooking up strange brews, n-no?"

"There are some areas around Water that smell creepy," Fromm said. "But I guess setties wouldn't feel the same way I do."

"You're expecting the setties to follow us into these zones?" Maday asked.

"No. But I want them to be

ready to look at recorded surveys. I've ordered a taste analyzer installed. That's what we're waiting for now. We'll make records from that, too. If there are a few brave settlers in our bunch, they can volunteer to experience the tastes of the areas. But at the very least, they have to give us some idea how the tabu regions tie in with the rest of Sun-Planet."

"There might be a few willing," Maday said.

The engineer's voice boomed from the lock intercom system. "Mr. Margul is here with the taste analyzer."

The man carried the small package down the hatch and handed it to Fromm, who carried it forward and mounted it in an equipment bay.

"Thank you, Mr. Margul. Mr. Fromm, seal us and we'll be on our way."

"Our wishes go with you," Margul said from the dock. There was a peculiar catch in his voice that made Green play it back in his head several times.

The hatch swung down and locked. Neps wound up the motors and engaged the propellers and water-jets. The tuberider swung away from the dock and left the lock, heading down the canal to the Ganset Sea. Fromm went over a last-minute checklist with Neps, and Green listened as he closed his eyes and angled his seat back. The rear support strut of the MAS dug into his butt slightly, but it wasn't un-

comfortable for the moment.

"Sixty hours motor time with the extra batteries. We've got—um . . . five gallons extra electrolyte and caulking material in case of crystal build-up. Oxygen—six tanks, enough for forty hours for each of us in emergency. Food and water for six days. Drug kit—"

"Ms. Maday," Green said. "When we're in open sea, send your request to Water." He closed his eyes again and drifted off. He hadn't had a decent sleep since he'd arrived, and now he let the extra weight pull him down without resisting. Even with the MAS, the pressure holding him in the padding was almost soothing. His eyeballs felt heavy and his eyelids didn't fly open so easily. He slept.

"Korliss, we have two settlers starboard," Maday said.

Green came awake and looked around slowly. Maday was looking through her port. "Can you identify them?" Korliss asked.

"They're turning toward us now. It's a bit murky. F-Nose and To-moye, I think. Yes. They're more tolerant than the others. They'll stay close to the tuberider. Anything on sonar?"

"Two more settlers ahead," Neps said. "Big ones. Patris. Did you ask Water to send any pack leaders?"

"I didn't," Maday said. "But that doesn't mean they wouldn't decide for themselves. I'm sure they know how important this is."

Green had a paranoid thought, then dismissed it. There wasn't much the setties could do in the way of defense, much less offense. The tuberider could be damaged, but his own death would only cinch the destruction of the setties, and he was reasonably sure they knew that by now, too. Maday had probably told them a lot more than Green would have allowed, had he the power. "Where are we now?" he asked.

"Ganset Sea, fifteen kilometers by twenty-two degrees from Laith Beacon," Neps said. "We're passing along a sea-wall."

Green's experience of multitudes of worlds had never accustomed him to the diversity and area of even a small planet's surface. The cliffs which passed a half kilometer away were twenty kilometers tall, rugged as the slopes of volcanoes, and a shiny reddish-black in color. They stretched from horizon to horizon and were pitted with caves of sufficient size and area to accommodate a large percentage of the population of Earth. A vague, muddy snow began at the five kilometer level, and ended at ten kilometers, where atmospheric moisture stopped.

"Have setties ever used the caves below the water line?" Green asked.

"Some have been explored," Korliss said. "But these are crustal shield material. The setties are interested in organic formations."

"I've heard there are skipperjack nests in the caves," Fromm said. "Makes it undesirable to go near them. The beaches on the flats northwest of here are littered with cuttlebones, where the current dredges them from the sea-bottom and washes them ashore."

"Setties send out their hunting parties to a point about ten kilometers east," Korliss said. "That's a skipperjack feeding ground. The hunters fight them there, kill them, and bring them back whole. Then the packs gather around for ritual feeding, about once every standard week."

"How many setties are killed in the hunts?"

"None," Maday broke in. "The skipperjacks are tailored not to resist predators armed with specific attack strategies. If the setties weren't restrained by ritual, the skipperjacks would probably be extinct by now."

"But they're afraid to let them into the settie nurseries?"

"With good reason," Korliss said. "Young setties don't know how to attack, and they're small enough that a skipperjack can kill them with beak or tentacles. The skipperjacks get most of their food from seining plankton, but they haven't lost all desire for large prey. The genetic engineers didn't iron out all the kinks—on purpose, I imagine; a little conflict and flexibility keeps both species alert."

Fromm passed around lunch kits

and their choice of one of six meal packets. Green chose a synthecarn salad, which tasted adequately fresh when vivified.

The lavatory facilities were cramped but adequate. Green had long since lost any particular desire for private facilities in his Astry career, but those used to staying in the Home Field—Neps in particular—found the situation awkward. Fromm kidded her, but stopped after the tuberider bucked in a sudden current while he was urinating. He had to clean up the mess and shower down amid jocular abuse about his terrible aim.

The connection between the Gan-set and Osko Seas was a broad sweep of shallow water—no more than ten meters deep—studded with small, mushroom-shaped islands. Korliss called them “nodes.” Most were made of organic shield material which had accreted in the channel over thousands of centuries. Some had collected beaches of sandy particles in the lee of predominant currents, and Neps pointed out a few bleached cuttlebones above the water line.

A few minutes into the channel a squall broke, and Fromm dove the tuberider beneath the surface to escape the barrage of hail. Koestler broke the clouds an hour later and added a blue-green glimmer to the water above, not enough to light their way. Young skipperjacks, no more than a meter or two long, frequently flared in the lamplights and

jetted away. To Green, the whole universe seemed heavy and fluid and dark. He stayed awake to keep Fromm alert while the others slept, and idly considered the alternatives to his present course of action.

“Osko Sea Shield edge ahead,” Fromm said. “Green looked through his water-smear port as the tuberider surfaced. The pale daylight glinted from the ragged slopes of the jade-green cliffs. There wasn’t much difference between these cliffs and the sea-wall, except for color. But this was where an organic shield ground up against a crustal shield; there were forces pent up beneath them which were awesome even to a former warper-ship captain.

A murmur of settie language came through the tuberider hull as the translator hummed its message signal. Fromm switched it on.

“This is F-Nose. Contact made with Osko Sea groups. Follow Patris and proceed at half speed.”

“How can they contact the others without our translator listening?” Green asked.

“Probably by taste-trails,” Maday said, swinging her seat up. Korliss yawned and shook Neps awake. “Either that, or subsonic bass tones out of our translator’s range.”

“How far to Crooked Shield?”

“About twenty kilometers,” Fromm said, after consulting a chart on the guidance display. “We could make it in forty minutes.”

Green looked at Maday with hands folded under his chin. "When do you think we should investigate Crooked Shield and Wormways?"

"That's up to you, Commander. Our setties have probably already arranged a meeting with the Osko Sea groups."

"But there are no restrictions on associating with people who violate a tabu area."

"No. Settles aren't concerned with the foolishness of others—no slight intended."

"Perhaps they understand the tabu can't hurt humans," Green offered.

"That's possible. Personally, I'm not sure your theory is correct. For one reason or another, no one's ever visited Wormways, and only one or two sorties have been made over Crooked Shield. There may be more there than a fly-over can detect."

"I have reason to believe Counselor-Administer Krutch is advising the Astry Execustaff on Sun-Planet. He was Governor of Home Field for twenty years before accepting the appointment to Myriadne, wasn't he?"

Maday nodded. "A good administrator, but not much on public relations. You think he's the one asking us to investigate the tabu zones?"

"I have my hunches," Green said.

"Representatives from nine packs

are swimming to meet us," the translator said. "This is Tomoye speaking. May we know who will address them?"

Green glanced at Maday, who was leaning forward in her seat to look through the bubble. "Tell him—" he began.

"Her," Korliss corrected.

"—her that I'll address them. Tell them we have two master tenders on board, also."

Fromm relayed the message. Tomoye instructed them to slow the tuberider and bring it into a small bay along the Osko Shield edge. That maneuver took twenty minutes. When the tuberider was rocking in a slow, calm swell, Neps stepped up into the vertical wing and popped the hatch.

Choosing his footing carefully, Green left his seat and climbed out to stand on the ribbed deck surrounding the wing. He swung his arms briefly to orient the MAS on his body, then faced the warm wind coming from the north. Korliss pointed out the flat plumes of two setties breaching. The little bay was about a kilometer long and two hundred meters wide. The odor of the organic shield material was strong and oily-dusty in his nose. The water of the Osko Sea smelled different—richer and more saturated with nutrients. It was like being in a giant petrochemical plant.

A few strands of seaweed and some globs of larger plankton were bobbing in the bay. Neps brought

out a small net on a telescoping tube and caught one of the globs, hoisting it for Green to examine.

"These are like jelly beans to a skipperjack," she said. "The silicate shell keeps the pressurized protoplasm bottled up. A skipperjack brings clusters in with its seining arms, then cracks the shells with its beak. They're single-celled phytoplankton, but they use something akin to the visual purple in our eyes to photosynthesize the weak light, instead of chlorophyll. Look around the edge—here and here—these red spots. It's symbiotic with barnacle-like creatures. They guarantee its supply of nutrients, since it can't rely entirely on dissolved organic matter and sunlight. The barnacles

ingest passing foodstuffs, then empty their wastes outside the nutrient intakes. Koestler isn't strong enough to support a purely photosynthetic plant ecology, so the soup in the oceans is usually symbiotic."

"Commander, the pack representatives are about a hundred yards east of us," Maday said

"They request that all major equipment be shut down and the use of hand tools kept to a minimum."

"Cut the motors, then. Let's get this net below."

"There's going to be more rolling with the gyros off, so watch your footing," Maday warned. The mechanical sounds of the tuberider subsided. Green spotted a collection of subsurface shadows accompanied



by rolling slicks of water and bubbling turbulence.

"These packs are even more sensitive about tools than our setties," Fromm said. "Fanatics, almost."

"They're ready to talk," Maday announced, handing Neps a microphone from the translator below. "They've given me their names."

Green held the microphone to his lips. "We'd like to talk to someone well versed concerning the last Perfidisian occupation."

The translator's twitter went out, and a deeper answer returned.

"This is H-Arrow, addressing the Stumble-Speaker." Neps suppressed a smile with one hand.

"Word gets around fast," Korliss said.

"What do your packs plan to do if the Perfidisians occupy Sun-Planet again?" Green asked.

"The plans were made many years ago, when our packs gathered in this sea to concentrate our study. We will deal with them the same way we did the first time. They ignored us, and we ignored them."

Green raised his eyebrows. "H-Arrow, our records show that much information was passed to the Perfidisians."

"They were curious about human behavior. They did not consult us on other matters."

"Excuse me," Maday interrupted, shutting off the translator. "Commander, different groups report what happened different ways. Most of the Osko Sea packs were in

a relatively hidden stretch of the Lambda Sea at the time."

"I'm aware of that," Green said testily. Maday shrugged and restored the link. "H-Arrow, this is Stumble-Speaker. I have information which leads me to believe the Perfidisians are interested in m-more than just human behavior. What will you do if they question you about Sun-Planet?"

"There should be no cause for fear. We believe Sun-Planet was made for creatures such as ourselves, not for anyone else. There is much evidence supporting our belief. We will maintain our discretion with the Ones Who Hide."

"Translator off," Green requested. "Maday, please announce yourself and tell them that's not good enough. We need to know what the Osko Sea packs have discovered, and soon—at least in outline form."

Maday identified herself and passed the request on. She looked at Green with a faintly bitter expression.

"We will never reveal those things to beings not made to accept them," H-Arrow replied.

"This is Stumble-Speaker. There's every chance the Ones Who Hide will try to break your wills to get any information you have. How can you guarantee they won't succeed?"

There was silence for a moment. "No effort was made the last time."

"No, because you were far from any sort of solution. Now we know you're very close. To get the solution from you, the Perfidisians might do anything."

Another pause. "Our memories do not give us the same impression."

Green removed a sheet of paper from his breast pocket and passed it down to Maday. "Read that to them," he said. "Look at the seal—it's official, and secret to all but top clearance Astry and Combine officers. You recognize the seal?"

Maday nodded. "Thin Hand speaking," she said. "I have a record of what happened to a group of non-human, intelligent beings known to us as Aighors. Their spaceship was disabled and captured by the Ones Who Hide." She read through the gory details quickly and sharply. The pause in translation was even longer this time.

"Why did they do that?" Neps asked.

"Because the Perfidisians were interested in an Aighor weapon system. The Aighors used the weapon to protect their home systems, but a few decades ago they became more belligerent and started expanding. The Perfidisians didn't get the secret, but they were up against beings a hell of a lot tougher than seties."

"What was the weapon?" Fromm asked. Green looked askance at him.

"Do you have evidence they are desperate enough to do such things to us?" H-Arrow finally responded.

"I do," Green said.

"But the information is not easily translated, and it does not come in the form of a compact solution. Nor is it technologically oriented. How could it be, when we feel it is addressed to our kind alone?"

Green thought that over for a moment, then decided the Execustaff would still be unsatisfied. "It's imperative for us to know the impact your findings might have on mental attitudes. When the attitudes of technological beings change, so do their technologies. In the long run, the purest of philosophies and theoretical sciences can be turned into tools, and these tools can be used as weapons."

There was a silence of about a minute. "This is H-Arrow. We understand your difficulty, and we hope you understand ours. We are under a sacred obligation to keep our findings within the circle of our kind. Our obligation to humans is great, but we firmly believe neither you nor the Ones Who Hide could have any use for what we have learned. We cannot serve you. We will be just as adamant with any other species."

The dark shapes began to move away from the tuberider.

"That's it," Maday said.

"How in hell do they know what we can and can't use? They h-haven't any idea—"

The sky brightened and the humans shielded their eyes against the glare. The effect was unmistakable—Green recognized it immediately. When the glow subsided, he looked up and saw four bright blue crescents surrounding the speck of Koestler. The light was four to eight hours old. The ships wouldn't be far behind.

"That's the receiving end of a Perfidisian warp," he said. "We've got two or three hours before their reconnaissance ships go into orbit around Sun-Planet, and perhaps three days before the main cruisers arrive. That gives us very little time. Fromm, put a tight-band signal into the coder and send it to the Station, Mister Berker's eyes only. I want the evacuation of Home Field expedited, and I want the big ships away from Sun-Planet in sixteen hours. That'll mean doubling up on the shuttles, but it can be done within reasonable safety margins." Fromm went below to handle the transmission.

"As for the rest of us," Green said, "there's more work to do. M-Maday, advise our setties that we're going into Wormways. I want them to stay within hailing distance. Korliss, brief me on the sounder and analyzer. Neps, will you take the con?"

"Yes, sir." They went below and sealed the hatch. Korliss moved out of the bubble and sat across from Green, helping him fix himself in his chair. Her face was grim, but

her hands—almost grudgingly, he thought—were gentle and soft.

"This is Berker," the transceiver sputtered. "Final message from Myriadne indicates no action will be taken to prevent Perfidisians from occupying Sun-Planet. Your message received and acknowledged. Good luck." The tuberider submerged, slow, tiny bubbles moving past the ports.

"The ball is in your court, Commander," Maday said.

"Our court," Green countered. "We have perhaps six hours to find out what the Osko Sea setties are hiding from us, and whether it has any bearing on what our setties already know."

"What are the odds?" Korliss asked.

"For what?"

"Genocide."

Green winced, then muttered something unintelligible.

"I would like to know, also, Commander," Maday said.

"At the moment," Green replied grimly, "about ninety per-cent."

"If I thought it would do any good—if I didn't know Berker would carry out your orders anyway—I'd kill you right now," Maday said, "or scuttle this vessel. That's my feeling, Green."

"If I thought it would d-do any good, I'd let you."

"Wormways, fifteen kilometers ahead on present course," Neps said quietly.

"Did Mr. Krutch tell the

Execustaff what he expected us to find?" Maday asked.

"No."

"What do you expect?"

"I'm not the expert," Green replied. "Perhaps nothing at all. This is a last-ditch effort."

"It would all be rather silly, you know, if the solution were something trivial," Fromm said. "An intergalactic shopping list." Green turned in his seat to watch the bubbles gliding by his port. The memory which had gnawed at him for a day surfaced sharp and distinct, and he remembered where he'd been the last time he'd felt so isolated and unimportant.

Six years ago, he had stood on the bridge of the United Stars Warper Ship *Changeling*, a quarter of a million kilometers above a thick haze of dust and stones circling a foggy red star. He had watched boulders several kilometers wide colliding with each other, striking bright sparks in the haze every few seconds, throughout the thirty flat rings which would be planets in an eon or so. He had come then to understand something about time scales and human lives. Some of the larger chunks—already several thousand kilometers wide, but by no means permanent—floated in broad gaps between the ring, wrapped in thick fogs of hydrogen, ammonia and methane. Surveys indicated that in the few million years these chunks had existed, lifeforms of a sort had already es-

tablished beach-heads in the infant solar system. There was no way of knowing how many such beach-heads would arise, and be destroyed as new equilibria were established in the rings. Against such forces, even the most advanced living things were nothing.

He tried to remind himself he didn't believe that. How many times had students, in and out of Combine and Consolidation schools, been warned by their teachers about the paralyzing effects of awe? Whole philosophies of cosmic *en-nui*, of "The stars are so great and man is so small," had risen and died and been resurrected to taunt people and add to the general misery of being alive, powerless, and ignorant.

But Green was not powerless, not by any human scale of things—and he was not directly concerned with vast forces. The decisions he would make would unleash not the blundering, chaotic grind of a birthing solar system, but a mere few watts of energy—the growth of pulmonary chancre virus in host tissue. The missiles were simple vectors, not very powerful in themselves—not even essential. He could reach into the warheads and scatter the crystals across the Ganset Sea by hand, and in a few weeks all the settlers would be dead. No, the missiles were simple increasers of efficiency, savers of time. Their launching would not be the result of millions of years of natural forces,

but of a few decades of organic interaction—social scuffles, bureaucratic decisions, various small fears and conglomerate distrusts, all measurable in the smallest units of power.

He was wrestling with scattered thoughts, and the thoughts were like tiny virus crystals, capable of initiating snowball reactions, made efficient by such vectors as the bodies they moved, the sound and energy waves they communicated across . . . all of them, all of the energies he was dealing with, all the myriad sparks in myriad brains, human and Perfidisian and settie, measurable in brief and ridiculously weak figures, magnified by the vectors which made them very slightly more efficient.

There was no comparison between the tiny, tight-packed energies of thought and the patient accretion of natural power, and never would be. Living things would always be outranked. Then why was he reminded of his littleness? Out of some masochistic urge to rub wounds?

No. It was much simpler. Green himself, within the scale of living things, was completely powerless. Green the Commander could destroy the setties, and finally the entire ecosystem of Sun-Planet, which was delicately balanced on a tripod any leg of which was essential. But personally, inside, the ur-Green, child-Green, living and believing and non-Military Green, was a

wandering chip of rock about to be ground out. He would make "his" decision and then drop away into scattered ash, the detritus of self-disgust and quiet.

There was no respect, no pride in the kind of power which could destroy him, used or unused, with either guilt or the end of his entire career. He suddenly realized why the haze of planetoids came back to him. As a child, he had stuttered, then been cured, and for thirty years he had talked as clearly and assuredly as anyone else. But four days after leaving the birthing solar system, he had started stuttering again. He had been so mortified at the outbreak—like an attack of acne in an old man—that he'd resolved to solve the problem without aid. Now he had some insight, but no resolution. He wrapped his arms

He wrapped his arms around himself as if to ward off cold, and sank his chin into his chest. He had a spastic tick in his foot now. And there had been tiny chains of spots in his vision for the last two or three hours, not caused by fatigue—he'd have been long familiar with them by now if that were true—but by something else. Perhaps it was gravitation-related. Sun-Planet, heavy and dark, demanded something superhuman from him, and neither his physique nor his mind was ready to stand up to the challenge.

The tick worsened. He clenched his leg muscles to stop the shaking.

"Wormways ahead," Neps said.

Green welcomed the chance to move about. He unhitched himself and walked forward. The tuberider's lights switched on and Neps directed them across the sea bottom ten meters below the vessel. Chasms and holes mottled the level terrain, smaller than the tubes in Water but otherwise similar. A band of bright red surrounded the lip of each hole, the same polyps which provided nutrients for the jelly-bean plankton. Neps stopped the tuberider above a particularly wide hole and shined the underside lamps directly into it. Ports along the bottom showed the walls of the tunnel were pocked. Just around a bend, silver flashes coruscated.

"There's a skipperjack down there," Korliss said.

"Sonar indicates the water is thick with them," Neps said. "I suppose it's a sanctuary. Settles don't come around to bother them."

"Can we send a lateral sounder into this hole? We should chart the pock configurations."

"Will do," Fromm said. He squeezed past Green to pull up a piece of deck plating midships. A small cylinder with fins, like an old bomb, was lodged in a padded corner of the small compartment. Fromm hooked a cable onto it and slipped it through an equipment airlock. It dropped a few meters below the tuberider. Neps maneuvered with one eye on the sonar display and deftly slipped the sounder into

the hole. The sounder, equipped with a small motor and self-guidance equipment, took itself deeper, chasing the skipperjack a hundred meters before the cable ran out. Fromm reeled it back in.

"We'll need taste analysis of the material making up the sea bottom," Green said.

"Already doing that, Commander," Neps said. "We've been making taste recordings since entering the tabu zone. I used the boundary signals to trigger the instruments."

"It'll be useless trying to record even a fair sample of these holes," Green said. "B-but if I'm any judge, our settles are missing out on a great deal here. This place may be as extensive as Water."

Neps drew a sharp breath and Green looked up. A ribbon of color like a spectrum chart signified a large shoal of skipperjacks, he couldn't tell how far ahead. It reached across the bubble's field of vision.

"Skipperjacks don't herd," Maday said pointlessly.

"They d-do here," Green said, glad to see her discomfitted.

"They're big ones," Neps said. "Sonar indicates they may be as much as fifty meters long. These holes are probably filled with them. If this is a nesting site, we're in trouble."

"Commander, I suggest we back out beyond the boundary," Korliss said.

"They're approaching in formation," Neps said.

"Reverse us," Green ordered. "And bring us to the surface. I want to contact the Station."

The tuberider skimmed over the field without turning around, reversing its turbine flow. The band of colors ahead rippled and silvered like an aurora in a compacted sky.

"We're through the boundary," Neps said. "Skipperjacks are scattering."

The tuberider surfaced and a static-cluttered beep immediately took Fromm's attention. He adjusted the filters but the static remained. "Sounds like a signal's being jammed," he said. "That's an instrument control tone—what's it doing on communications frequencies?"

Green reached around Fromm's arm and adjusted the receiver himself. He could make out the tone-code now. "It's a signal for Kerith Post," he said. "But it's being jammed so strongly the Post won't accept it. Where's it coming from?"

"Too much bounce to tell for sure, but it's too strong to be from anywhere but the Station."

"Let's try Home Field public network."

Fromm switched bands on the radio and listened intently. "Nothing transmitting there."

"This is a prime wake period," Maday said. "They have to transmit. It's required by law."

"They're not," Fromm said testily.

"Put me on the Clear frequency," Green said. Fromm handed him a microphone and he clipped it to his uniform collar. "This is Commander Kenneth Green, direct message to William Berker at Main Station."

"This channel's jammed, too," Fromm said. He switched on the receiver speaker and pulsing white noise alternated with snaps and crackles. "It isn't natural."

"The Perfidisians?" Korliss asked.

"I doubt it," Green said. "It would take too m-much power from their distance, and serve no purpose. Something's going on at the Station."

Fromm switched on a battery of decoding filters and attached the tuberider computer to enhance the signal. The noise was refined into a garble of voices, which after some adjustment became comprehensible.

"We're receiving your signal, Commander Green. Main Station is under seige and Home Field is jamming on all frequencies—"

The signal dropped below all saving and Green cursed the man for not identifying himself. "Let's complete our message. Clear frequency again. This is Commander Green, requesting whoever receives this message to relay it to William Berker immediately. Osko Sea set-ties are adamant, and there appears to be no alternative."

Maday sighed raggedly. Green saw her fists were clenched. Sooner bash one of her children against a wall, he thought. Or, in effect, all her children—all of Sun-Planet. Two centuries of work.

“We’ve got to let our setties examine the recordings of the tabu zones,” Korliss said, her voice high-pitched and childish.

Fromm growled deep in his throat.

“Launch vectors through cables—” Green began.

“No!” the boy shouted. He slammed his hand against the transmitter button and the microphone went dead. The noise from the receiver stopped and a tiny feedback whine dropped into silence. Then the tuberider was quiet, engines dead, drifting in the jerky wallow of the Osko Sea. “You won’t give that order,” Fromm said, much more than an adolescent now. “We’re going back to the Station to see what’s happened, but this radio will not be used while I’m controlling it.”

Green smiled faintly and returned to his seat, hitching himself in. “Not that it will make much difference, Mister Fromm. The instrument control tone was intended for Kerith Post, and the jamming is a deliberate attempt to block it. Mr. Berker has no alternative but the cables between the Station and Kerith Post’s computers.”

“Somebody’s decided to stay and fight,” Maday said. “Thank God

for brave and scrupulous men.”

“Pray God that Sun-Planet is a trivial place,” Green said. “Pray God, Maday. Your f-friends may have lit more candles than they can ever put out.” The tender glared at him and turned away. Tears were running down Korliss’s cheeks, reflecting greenish stars from the controls.

Green felt a wild surge inside, almost an exultation. He laid his head back against the neck brace of his MAS and fought down a lump in his throat. He couldn’t decide if he was angry, or afraid, or simply relieved. Relieved of his duty. No responsibility now. Everything was shot to hell, whether or not Berker was able to launch the vector missiles. Behind closed eyes he saw the relentless grind of billions of planetoids.

Then his anger surfaced and he opened his eyes wide, looking into the dim sea beyond the bubble. His jaws clenched. If Sun-Planet was so important, why not destroy it completely? Why not provide means of fusing it into scattered dust and gas? A few bombs placed at antipodes along the rims of the key crustal shields would break through the mantle and release all the energy of the boundary layer, and it would be all over.

But he knew the answer as soon as the question was clear. In tropical countries on Earth, monkey-hunters had once trapped their prey by putting out small-necked jars

filled with fruit and cookies. The monkeys, unable to get both goodies and hands out of the jar, held on to their prizes, squealing and chattering, even as they faced down clubs and knives. Man's bluff on Sun-Planet was similar.

Ragged, smoke-stained men, women and children lined the walls of the canal leading from the Ganset Sea to the Main Station. Each wore an MAS, or carried the remains of a damaged one. Maday stood on the deck to prevent their firing on the tuberider. Green watched from the hatch, fighting back his own tears now. The Station had been assaulted with what looked like chemical explosives. The protection screens—added two centuries before to offer minimal security against a major crust upheaval—had absorbed most of the shelling, but the canal was littered with floating debris and—his stomach churned—bodies. Astry uniforms and Home Field insignia were about evenly matched in the slick, stained water.

Almost as one, the crowds on the banks looked up at a bright flash passing overhead. It was the last colonizer, activating fusion pulses to take it away from Sun-Planet. Over ninety per-cent of Home Field's citizens were aboard the ships. Those left behind had stayed by choice, to protect their work and, Green guessed, those they considered their friends.

The siege had ended barely an hour before. Six teams of aircraft

had dropped crust repair material, surplused from Loytnant Keefer's unnecessary wall, across the Kerith Post, burying the site in three meters of tough, quick-setting polymer cement. Berker had not launched the missiles in time.

The lock seals swung wide and the tuberider entered. Docking clamps lifted it from the water and Green stepped down to confront Margul, who looked very grim.

"Where's Berker, Mister Margul?" Green asked.

"In the hospital, sir."

"Hurt in the siege?"

"No, sir. I hit him."

Green could almost reconstruct the scene. "He was going for the cable system, wasn't he?" The cables were buried in the crust, and would have been unjammable. The missiles would have been launched, and Green's orders from the Execustaff would have been carried out.

"Yes," Margul answered.

"How long have you been of . . . this persuasion, M-Mister Margul?" Green asked.

"Not long, sir."

"Who persuaded you?"

Margul allowed a brief flash of disgust to appear on his face. "I persuaded myself, Commander. I am my own man. It would have been useless to kill the setties. Zero-Nose managed to get into the locks before the tenders and Home Fielders set up their siege. Berker wouldn't listen to him."

"What did Zero-Nose say?" Maday asked, carrying the recordings from the tuberider.

"A congress of patris put together the final pieces of the puzzle after you left," Margul said. "They didn't tell us until eight hours ago, after the jamming began. Zero-Nose left the locks just before you returned. He had to get back to Water. The setties are fighting off a . . . fifth column, I guess you'd call it."

"Whose fifth column?"

"The Perfidisian's. We've all been blind, Commander. No excuse for it. Blind and cruel."

Margul was near exhaustion and nervous collapse. Green looked the man over quickly, decided he was babbling, and walked past him. Pink was standing at his post outside the lock exit, and he saluted as Green went past.

Green turned to the JG and asked how many had been killed.

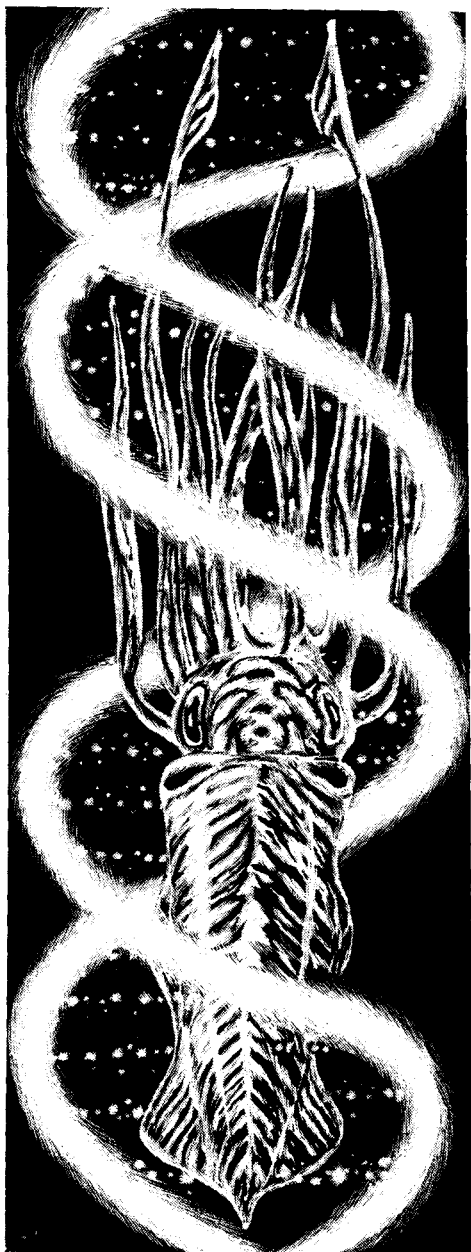
"Twelve, sir. Three are in med center for reconstruction. They'll live with minimal handicaps. One will live but he's got pretty bad brain damage. He'll need extensive tissue regeneration and re-programming. His personality has probably been wiped, which means he might as well be dead."

"And you?"

"The arm, sir. Command fell apart during the siege."

"How did Margul attack Berker?"

"With a piece of table leg, sir."



Green took the lift to the fifth floor and looked at the bands of technicians wandering from console to console, trying to piece together what was left. A shell had come through the roof, where the shield was weakest, and knocked out communications. The detection center was still operative, and a young woman was at the position, eyes tracking the displays. Green walked behind her and put a hand on her shoulder. She shrugged it off without looking.

"What are the Perfidisians up to?" he asked.

She flinched. "Uh . . . I'm sorry, Commander. Scout ships are in orbit and cruisers are four hours away. One ship has landed near the Osko Sea, on—"

"Crooked Shield," Green said.

"Yes, sir. You were told."

"No," Green said. "Tabu area." Margul's words suddenly made sense. "Safe for the fifth column."

There was little he could do. He made a stab at setting up coherent watch schedules and gave a few necessary commands to allow the staff to repair equipment and restore Station function wherever they felt it was needed.

He then went to his cabin, first pausing in the visitor's observation hall. "Lights out," he said. On the horizon, just above the roiling clouds, three bright stars had joined the muddy constellations. They were of little concern to him now.

The Station hadn't been equipped

to defend itself against a few thousand crudely armed Home Fielders. They didn't have a hope of fighting off Perfidisians.

VI

The meeting room was as barren and unpleasant as ever.

The Station had shut down all machinery not necessary for the immediate survival of its inhabitants, including counter-gravitation. Green sat alone at the head of the table, feeling the oppressive weight and silence. The jade-green walls completed the uneasy effect. Maday came in, wearing an MAS and clutching a file folder filled with papers. Korliss followed her, then Margul, still wan after his nervous breakdown of two days before. Two Home Field Reps came in last. Green pointedly ignored the fact that they had led the attack on the Station. The guard sealed the door.

"Do you have the settle results?" Green asked. Maday nodded. How stiff and formal this room made people, he thought; this room, and the past few days. Green felt a mild curiosity about what the woman carried in the folder. Mighty secrets to oppress him further with the knowledge of his failure? Or trivialities which would make them break into laughter, if they were at all sane?

"I-is it an interstellar shopping list?" he asked.

Maday shook her head. "No. But for the moment it's as useless."

Korliss was the only one who felt any sympathy for him, Green thought. Her look, gentler and less bitter, gave him some strength. He gathered the courage to speak in more than brief sentences, deciding the stutter was unavoidable.

"Mr. Margul, you've b-been here l-longer than I, and you've commanded this St-station. Do you find the results credible?"

Margul nodded.

"Then I'd l-like to read them."

Maday slid the folder across the table and he untied the string. "Give me ten or fifteen minutes," he said. So little time for two centuries of work. The paper's opening precis supplied all he needed for this conference. In part, it read:

"Wormways and Crooked Shield were not essential to this final statement of Sun-Planet's purpose. The recordings brought back by the Green-Maday expedition confirm that the tabu zones contain a substantial portion of Sun-Planet's intact information. But it is not necessary to have all the information in order to understand what Sun-Planet was, any more than being able to read a directory requires knowing every name on the list.

"Sun-Planet was once occupied by three species of intelligent beings. The Darks themselves were the builders and space-farers. The tube-borers possessed limited intelligence, and carried out strictly proscribed tasks. The third species was aquatic."

Thus far, Green thought, the Osko Sea setties had not been too wrong.

"The borers absorbed information and carried it in their very efficient memories throughout the complex known as Water. The pocks on the walls of their tubes served several purposes, the most important being guidance of borers too intent on memorized data to watch where they were going.

"The aquatic animals acted as 'runners.' The Darks stored a substantial part of the information in the organic shields. Minute particles dissolved by the sea-water acted as language, activating appropriate responses in the nervous systems of these runners. Thus, every few centimeters of intact crust carries millions of bits of data, molecularly encoded. The aquatic animals retrieved the data, carried it to the borers, and they in turn delivered it to whomever requested the selection.

"There is no way of knowing what the relation between the Darks and their servants was, genetically or socially. The Darks may have engaged in genetic engineering on Sun-Planet much like its current occupants.

"It is now certain that none of the beings involved were mammalian. The aquatic animals bore no resemblance to setties. In fact, they resembled cephalopods."

Green shook his head slowly. In two hundred years, driven by the

destruction of their kind—not devastating, but terrifyingly certain—the skipperjacks had evolved their own cultures and discovered for themselves that the organic shields could be “read.” Differences in their nervous structure and biochemistry made their readings incomplete, yet the storage system was still less alien to them than it was to the setties. Nevertheless, the information had never meant a great deal to them until the arrival of the Perfidisians.

And then the fifth column had been established. While the setties labored, the skipperjacks gathered. They found their equivalent of Water in the tabu zones, and made a stand, relying—the precis confirmed—on the setties’ natural aversion to conditions there.

He held his head to still a beginning headache. The skipperjacks weren’t intelligent in the same way humans and setties were. They were not independently creative or capable of the cultural complexities humans and setties took for granted. Yet it was now apparent the Darks’ aquatic ‘runners’ had been no more complete than the skipperjacks.

“There is no way of knowing what the rest of Sun-Planet’s ecosystem was like. Fossils are unknown. The borers and sea-creatures were mostly soft tissue, leaving nothing behind which can be found with the resources at our disposal.

“The molecules of the organic

shields, and the sundry other codes of Sun-Planet, describe every world the Darks visited or established colonies on. Everything except information about the Darks and their activities has been included.”

The last paragraph was surprisingly terse. Green flipped through to the matching section in the report and found that it, too, was small compared to the rest of the material. Evidently the setties valued least what the humans wanted most of all.

As Maday had said, for the moment it was all useless. Neither the Perfidisians nor the humans had the resources to visit every planet listed in the apparently huge file. Preliminary translation pointed to a total of well over seventy billion worlds in the catalog, scattered throughout the galaxy, the Magellanic clouds, and near clusters of stars.

“This will be very important someday,” he said.

“Too late to make up excuses,” Maday countered. “For the present it’s just so much drivel. Most of the relative measures and directions must be dated by hundreds of thousands, even millions of years. That makes most of the information useless.”

“Nothing is irretrievable, given time,” Green said. “If we even have a tenth—a c-conservative guess—of the t-total, in time it w-will be possible to track down a l-large number of the listed w-worlds. And the technology of

beings who could build a world like Sun-Planet—that would b-be very useful indeed. Any artifacts w-would be revolutionary.”

“And for that remote possibility, you would—” Maday began.

“That’s enough,” Green said. “What’s happened here in the past few days does honor to n-no one, and sh-should make n-none o-of u-us proud, sh-sh-should n-n-not—” He stopped and whistled to break the impasse. Maday didn’t diminish the intensity of her glare. Green hated her for one indulgent moment. She was like a machine. She knew only one thing—devotion to setties—and did not care much about her own kind, or why they were compelled to do certain things. But he couldn’t condemn her folly, not with his own dichotomy still before him. The weight and unease crept around him again. “Is there anything else?”

“Yes,” Korliss said. “Forgive me, but I haven’t grasped what this is all about. Using a . . . a thing like Sun-Planet to hold information seems the height of absurdity. It’s huge, and must be inefficient compared to other ways the Darks had. Why did they build it in the first place?”

Green thought that over for a few moments. No one else answered. They were all provincial—their major experience had been on one world. None of them had seen the peculiarities the most intelligent species were capable of. But then,

that qualification didn’t seem appropriate here.

“It d-didn’t need much upkeep,” he said. “Once established, it sustained itself for long periods of time. As an information storage system, it’s still a bit m-more efficient than our b-best material memory units. Consider the v-volume of information. And putting all of that in spacial or quantum storage would take too much energy. Sun-Planet w-would have been ideal if the Darks weren’t in much of a hurry to retrieve data. It would probably have t-taken several days for a request to be carried out.”

“Seventy billion worlds,” Margul said. He looked up from the table, embarrassed at musing out loud.

“Exactly,” Green said. “Allow a trillion words or more for each world’s description . . . It’s staggering.” He looked around for more questions and saw none. “I th-thank you all for coming. Tomorrow—s-standard—we’ll try to arrange a meeting with the Perfidisians. I’ll be th-the one to meet them. Until then, there will be no effort to communicate with them.”

“I doubt you have the power to enforce such an order,” Maday said. “Any military command on Sun-Planet was revoked by the action of the civilians.”

“There are going to be a lot m-more difficulties before w-we can sit b-back and be smug,” Green said quietly.

"The Commander knows more about Perfidisians than any of us," Korliss said. "I think his suggestion is only common sense."

Maday leaned back in her chair.

VII

Sun-Planet's morning came. There was little difficulty arranging a meeting. In the repaired communications center, the Perfidisian's voice—if only one was speaking—sounded completely human. There was no hint of personality or any underlying character in the word-choice of the reply. They would send their representative to meet Green on a specified beach, not more than ten kilometers from the Station, bordering the Ganset Sea.

Green went alone, and took a tracked vehicle to the beach, wearing his MAS and a small recorder. A hundred meters from the specified point, the vehicle stopped and the recorder refused to function. The MAS continued to operate, and he was able to finish the journey with little strain. For a few minutes after his arrival the beach was empty.

Then the squat disk materialized, its weight sending pressure-waves across the water-soaked sand. On the disk, a metal sculpture began to spin itself, fluid and magical. Green was unimpressed. He'd seen this kind of display before, the last time he'd met with a Perfidisian "representative." What the trick meant to

them, he didn't know, but its charm was lost on second viewing.

In a few seconds, three spheres rested on top of each other on the plate. The topmost sphere opened into a dark circular hole, from which a voice seemed to come.

"I assume we both know by now what Sun-Planet is," the voice said.

"Enough to get the picture," Green said, purposefully using the idiom. The Perfidisians weren't all-knowing. There was a pause before the next few words came.

"This reclamation will cover one terrestrial year. In that time, we will allow one of your large ships to pick up all remaining inhabitants—humans only, of course—and take them home."

"This is their home," Green said. Again the surge and elation rose in him. He swallowed and said, "Most were born here. Most are Abstainers." Would the Perfidisians know what Abstainers were? There was no pause.

"It is of no importance to us how many stay. We cannot guarantee their safety."

"We will all stay," Green said. "We have obligations to our children." He'd thought the word out carefully hours before—and it was far preferable to "creations," or "animals," or anything else which came to mind.

"We are not in competition," the voice said. "Do you understand that?"

"We do not compete directly,"

Green said. "But we do compete. All living things must."

"Strange but appropriate sentiment," the voice said. "Two centuries ago, you put life on this world which could survive only through death and destruction. Had you been wiser, and seen the cruelty imposed on all of us by nature, you might have thought to create something truly original, and not merely an imitation of our uncertain origins. As it was, you benefited us as much as yourself, and by fluke. We seldom benefit from such flukes. It gives us the impression, whatever your other characteristics, that you are not truly competitive, not like the Aighors, for example."

That was the longest speech he had ever heard from a Perfidisian. It almost made him doubt he was dealing with one. Perhaps a computer personality had been established to talk with humans. There was no way of knowing.

"You will take no action against us, and we will not interfere with you," Green said. "And if s-such an opportunity c-comes, p-perhaps we w-will," the words came hard, "exchange what we know."

The sphere said nothing for a long moment. "Your defective speech can be corrected. We can correct it for you, without inconvenience or any harm or interference."

"No thank you," Green said. He had no reason to doubt their honesty—it was a trivial matter, and

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rather like them to offer such senseless concessions.

"We will go in a year," the sphere said. "At that time, the skipperjacks will be released from any undue self-awareness this world has imposed on them. What you do after will be your own business. There will be very few opportunities for us to talk again. Choose them with care."

"Understood," Green said.

The figure dissolved and the sand flowed back. Nothing physically measurable remained.

And now, his memory of the words was unclear, though the sense remained undistorted.

It would be an uneasy time. He had thought his job was over, and his command at an end. But for a year, they would be on their own, and that would require a huge amount of discipline, which he could help provide.

His superiors had bollixed things from beginning to end, and he had been forced, by training and past inclination, to go along with them. That burden was now tossed aside. He was his own man. He reached for the insignia on his uniform, and formed a fist around them, then relaxed.

Not even the symbolic untying of knots was necessary. Never again, no matter what the consequences, would he ever be a tool of someone else's will. That was his dichotomy.

Only when a planetoid was able to rise out of the haze, and achieve

sufficient eminence to avoid the collisions of its neighbors, was there hope for life, and growth, and independence.

In the haze, there was only confusing and grinding.

When he returned to the Station, he briefed four reps and three of his senior officers. He told them their connection with the Astry was temporarily severed by circumstance, and that they were for the moment dependent only on their own judgement.

"I will r-remain your Commander," he said, "only so long as I demonstrate an understanding of Sun-Planet, and all it represents. I expect to be reminded i-if I step away from that path."

Korliss met him at the door to the locks after the meeting and offered to introduce him to Zero-Nose and F-Spot.

"We've met, I believe," Green said, smiling.

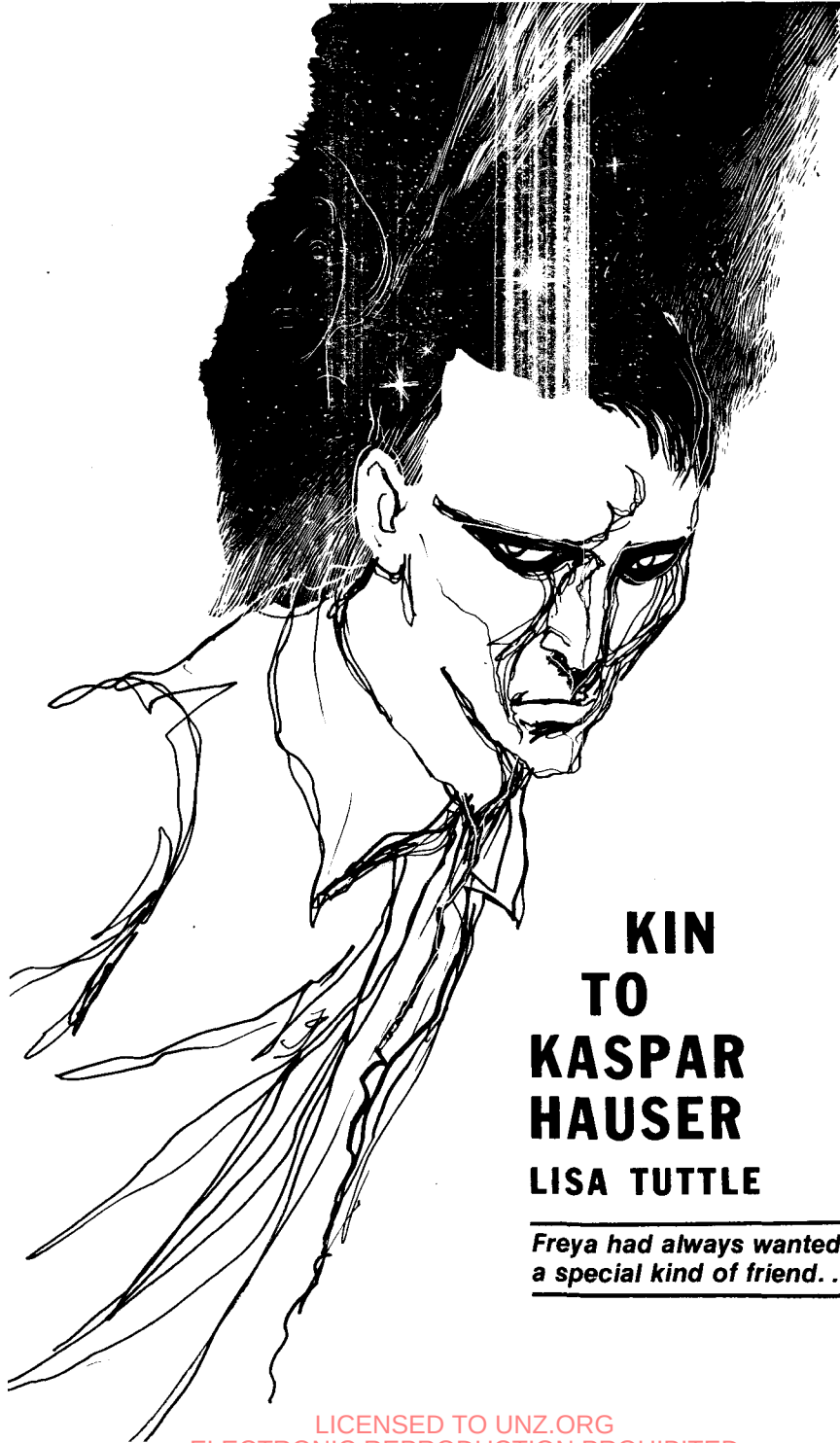
"I'm not so sure you have," Korliss countered. "Besides, if you're going to be a leader for the next few months—"

"A big if, depending on people like yourself and Maday."

"—if you are, we have to get rid of that stammer. Believe me, I know what it can be like in tough moments. The setties helped me—perhaps they can help you."

"Perhaps," Green said.

But he knew the problem was already a long way toward being solved. ★



**KIN
TO
KASPAR
HAUSER
LISA TUTTLE**

*Freya had always wanted
a special kind of friend...*

SITTING IN HER WINDOW one night, dreaming of having a friend, Freya was the first to see the stranger as he came out of the black nowhere of the west Texas night, walking as if he were moving through water or dragging great weights on his legs. She wasn't sure she really saw this shambling apparition moving across the grass until the dogs began to howl and cry.

Downstairs, Frank Hudspeth sat reading accounts of strange apparitions and extra-terrestrial visitors in a circle of light in the big, dark living room. The sound of the dogs—he had never heard them make a noise quite like that—made the back of his neck prickle.

“What’s wrong with the dogs, Frank?” Edwina stood in the doorway, almost on tiptoe—a trick she had when she was nervous.

Frank bent over and fished his soft, worn shoes out from under the footstool. “I’ll go out and see,” he said. “It’s probably just a coyote.”

“Do you think you should take a gun?”

Frank owned several guns—left to him, along with the house and ranch, by his father, but he had never felt comfortable with them.

“Aw, no, honey,” he said, standing and sucking in his stomach. He looked at his wife tenderly. “I’ll put the yardlights on the stand on the porch till I see what it is. Those dogs are crazy, anyway.”

Frank flipped the switch to flood the yard with light and stepped out

on the porch yelling, “Dogs! Y’all quiet down!”

He gazed out uncertainly at the man weaving across the lawn. A drunk from the highway? But why were the dogs making such a fuss?

“Mister?” Frank called uncertainly. The dogs finally quieted. The stranger continued to lurch and amble forward. Then, abruptly, the stranger pitched forward and lay face down on the ground.

Freya moved away from the window when she saw her father run out across the lawn to the fallen stranger. Her fists were clenched, the nails pressing tiny-moons in her palms.

“Well, I can’t find a thing wrong with him,” Dr. Kaye said, sighing and pushing out his lower lip. “He’ll sleep it off, I suppose.”

“But, doctor—there must be *something* wrong with him,” Edwina said, a small, reasonable smile on her face. “After all, he *is* unconscious.”

Dr. Kaye looked at her without warmth. “Yes ma’am. He doesn’t smell of liquor, so I don’t think he’s drunk. He doesn’t seem to be in shock, and he doesn’t have any big lumps on his head. Could be he just passed out from exhaustion and exposure—from the looks of him, he’s travelled quite a ways, and a good meal would probably be a novelty to him. Or it could be

drugs, or it could be a combination of things—drugs, hunger, exhaustion. He's probably just some California bum, hopped to the gills and driving cross country when he stopped the car to be sick. And then forgot where he left his car, so he had to walk. Just y'all's bad luck he picked your yard to pass out in."

"What makes you think he's from California, Doctor?" Frank asked. "After all, we didn't find any identification on him."

"California, New Mexico, Las Vegas." The doctor shook his head. "Who the hell cares? He's not from around *here*, and he's obviously pumped full of dope . . ."

"I thought you couldn't be sure of that," Edwina said.

The doctor shrugged irritably, as if a fly had landed on his ear. "Of course I can't be sure of that. We'd need tests for that. Y'all did call the sheriff?"

Frank nodded. "He should be here by now," he said, wondering uncomfortably if the sheriff *would* come. He had sounded disbelieving on the phone, and Frank remembered too well an unpleasant half-hour in which the sheriff had questioned him about "that crazy flying saucer book you wrote," trying to get an admission that the book was all a joke or a hoax. Frank had held fast, and now the sheriff looked at him as if he were crazy on the rare occasions when they met.

"The sheriff'll know what to do," Dr. Kay said.

The dogs began to bark outside—their normal barking, this time.

"That must be the sheriff," Edwina said with relief. Frank looked at her, feeling protective. Would she feel that same relief if she knew the sheriff spoke of her in town as "that crazy woman"? Frank moved closer to his wife and put his arm around her.

"I'll be going now," Dr. Kaye said. "If y'all will excuse me."

The sheriff was getting out of his car as Dr. Kaye stepped out onto the porch. Frank and Edwina stood in the open doorway, watching as the two men met and exchanged a few sentences in lowered tones.

"Doc tells me y'all've got some doped-up hippie here," Sheriff James said, pulling his hat off. He stepped inside and gazed around the high-ceilinged front hall. "Where'd you stash him?"

"He's upstairs, in the guest bedroom," Edwina said. "And we don't know for sure that he's been taking drugs. Dr. Kaye said he couldn't tell for sure."

"Yes ma'am, I know that," the sheriff said, following Edwina up the stairs.

It was the sheriff's opinion that the stranger was either a doped-up Mexican or some crazy bum from one of those communes in New Mexico. He offered to lock him up, pointing out that the man, who had no identification papers, might be an illegal alien.

"The border is nowhere near here," Frank protested.

The sheriff shrugged. "Might be a good idea to lock him up anyway. In the morning, if he can explain himself, I let him out of jail and he goes on his way."

"No thanks," Frank said. "I don't think we'd be doing him a favor to put him in jail."

"Might be doing *you* a favor, though," Sheriff James said. "Y'all don't intend to let this guy stay here overnight?"

"For as long as he needs to stay," Frank said coldly. "Whatever happened to hospitality?"

"Crazy people made it dangerous," the sheriff said.

"Thank you for your valuable time, Sheriff James," Frank said. "We appreciate your coming out here, this time of night."

The other man shrugged and put his hat back on. "Y'all had better be careful," he said. "Just because we don't have any calls out on escapees from mental institutions don't mean he's not one. He could have come from a long way away, been in hiding for awhile. I'll see what I can find in the morning—I'll see what word I can get out of Mexico, and I'll get the latest on missing persons, get a photo of this guy with his eyes open and send it around."

"Would you like some coffee before you go?" Edwina asked.

"No thank you, ma'am." He nodded to them both. "Give me a

call in the morning when he starts talking—or if he doesn't."

Freya crouched beside her door, listening to the voices in the hall. When she heard them all go downstairs again, she crept across the hall into the guest bedroom, where she sat for a long time beside the stranger's bed, watching the faint movements of his eyes behind their closed lids and wondering what strange sights those eyes had seen. She had a feeling she would soon find out.

The stranger was conscious in the morning, but would not or could not talk. He did not respond when Edwina questioned him in English, Spanish, French and Russian. He gazed with dark and uncomprehending eyes while Frank attempted simple and complex hand signals. Freya, standing in the doorway and watching it all, began giggling helplessly at her father's contortions.

Edwina turned. "Are you still here? You're going to miss your bus again if you don't hurry." Her look said plainly that Freya did not belong here.

Freya backed away. It was nearly time for the bus, and she would have to run down the long, shelled driveway to the highway to catch it.

"I wonder what he's thinking," Edwina said.

"He might still be dopey," Frank

said. "Maybe this afternoon he'll be able to respond."

"It's awfully funny he doesn't have any identification. Not even labels in his clothes."

"They're old clothes," Frank said. "And he might have left his wallet in his car."

"If he came in a car."

"Or he might have been robbed," Frank said. "Maybe he picked up a hitch-hiker with a gun, and got turned out of his own car in the desert."

"He's a mysterious stranger," Edwina said. She looked down at the man's face, which looked very dark contrasted against the white pillowcase. He looked back at her, blank and guideless as an infant. "There are probably a lot more mysterious strangers around than anyone realizes. They walk out of nowhere, and then get explained away. They're crazy, or sick, or from another country, or amnesiac."

"We have to look for facts, Edwina," Frank said. "Otherwise we don't have anything better than fairy tales."

"Oh, facts," said Edwina scornfully. "Physical evidence. That's not all there is to life. What about *feelings*, Frank? Don't you believe we can feel things that we can't know by other means?"

Frank looked away from her accusing face, feeling acutely uncomfortable. "I'm going to go out and look for his car," he said. "He

might have had a wreck, or run out of gas, a few miles from here."

"I don't think he came in a car," Edwina said. She looked back at the stranger. "But go ahead."

Frank spent most of the morning searching the warm, windy land. First he took his car and drove a full ten miles in each direction on the highway which ran east and west through the flat, open country. He drove slowly, examining the sides of the road for unexpected culverts which might hide a small car, and gazing off into the dusty, scrubby distances until his eyes ached, looking for anything.

He found nothing.

He put the car back in the garage and went on foot across his land—land he owned but rented out to a neighbor who needed more land to graze his cattle. Frank wondered that they found enough to eat on this inhospitable soil. He walked out to the tank, where the black-faced steers moved sullenly away at his approach. Frank tossed a stone into the still, murky water and remembered swimming in it as a boy, during three summers spent with his grandfather.

He thought about Edwina, and about the stranger, and wondered what force would take a man's mind and drive him on foot across miles and miles of empty land.

Frank could hear Edwina talking on the telephone in the study when he came back inside. He stood beside the door, listening for a mo-

ment, then moved on, satisfied that the caller was another "Missing Hours" enthusiast.

"The Missing Hours" was Frank's first book, and Edwina's story. The title referred to four hours which had been lost from Edwina's life until, under hypnosis, she revealed a startling and detailed memory of an encounter with alien creatures in a spaceship.

After the success of "The Missing Hours" Frank had written other books about the UFO phenomena, but it was all second-hand material, garnered from interviews and from other books. They had sold well, but it was "The Missing Hours" which still drew the mail, the phone calls, the curious visitors. It was time, Frank thought, to find something new to write about.

Then he paused, struck: could the stranger upstairs be a hoax? He would have to be very careful, Frank decided. He knew what Edwina wanted to believe—what she already was believing—and knew that it would be hard to counter her belief with a search for the truth.

* * *

Freya sat on the hard-packed dirt of the playground, her skirt tucked beneath her and her back against the cold metal pole of the tetherball, waiting for her mother to come for her.

Her mother, she knew, would be angry, and would accuse her of deliberately missing the bus. Her

mother would be right. Freya dreaded making her mother angry, but would have missed the schoolbus everyday if she had dared.

Freya had no friends, and riding the schoolbus home everyday meant another ordeal of being shunned or being teased. The other children disliked and distrusted her because she was different and made no effort to be liked.

But how could she be friends with kids who made fun of her city-bred father for writing crazy books instead of raising cattle, and made fun of her mother because she had talked to monsters from outer space?

Freya tensed, scowling, and drew her knees up to her chest, hugging her legs to herself. How could someone whose idea of a journey to a faraway place was a weekend trip to Wichita Falls make fun of her mother, who was probably one of the most important people on this planet? Her beautiful, intelligent, famous mother.

It hurt to have no friends, and to be the only girl in the sixth grade who'd never even been asked to go steady, but Freya was willing to put up with anything, if only it truly mattered. If only her mother would notice, and care.

Freya had been born eight months after Edwina Hudspeth's "missing hours." When, five years later, the missing hours were recalled to her, Edwina did not miss the significance in the timing of Freya's birth.

The suggestion that Edwina might have been impregnated during her sojourn with the aliens, or that the month-old foetus might have been altered somehow, was duly and tantalizingly made in the book, although the Hudspeths had to admit that Freya seemed no different from any other human child. Doctors, scientists, mystics, crazies and skeptics, all intrigued by the Hudspeths book, came to the ranch to examine Freya. For a little while, Freya was the center of a lot of attention.

Freya was tested for anything and everything that happened to occur to anyone, but all the tests revealed her as a bright, but basically ordinary, little girl. Freya wanted to please her mother, but the hints her mother gave her were useless. She couldn't, no matter how she tried, read minds, predict the future, or make small objects move across the room. She couldn't do those things, and nothing else that she could be seemed to be special enough to please her mother.

"He could be an Indian," Frank said again. He and Edwina watched the stranger who sat propped up in bed, watching them with bewildered brown eyes.

"I don't think there are any Indians left who don't speak English," Edwina said, "or at least Spanish. And even if he is from some isolated area down in Mexico—how did he get *here*?"

Freya, who had been standing quietly in the doorway, now came forward, her eyes fixed on the man in the bed. He turned away from Frank to watch her.

"Freya!" Edwina said sharply.

"It's all right, Mama," Freya said. "He's my friend." As she spoke, the stranger put out a hand. She patted it gently.

"Freya," Frank said uneasily.

"No, Frank," Edwina said. "It's all right. Freya's right. I think he likes her."

Freya smiled. A moment later, an eerie echo, the stranger smiled, too.

Later that night, when the house was dark and still, Freya returned to the guest room to speak to the stranger. She asked him about himself, and about the world he had come from. She supplied the answers herself, for the stranger remained silent. She could see his eyes shining in the moonlight which filtered through gauzy curtains, and she knew he was awake and listening.

"What's it like where you come from?" Freya asked softly. "Can you do magic there? You have a car that flies, don't you? And you take it out on highways which are just like ribbons of light hanging in the air. Birds fly right through them, but your car follows the light-highway and never crashes.

"You don't live in a house like this one, either. You live in a house

with crystal walls where the colors change with your moods. You can see through them when you want to. And every autumn you step outside and clap your hands and the whole house crumbles—it falls like flaming leaves and like snow. And then to build a new one you just—”

The door opened, and there was Edwina, a large drawing-pad and half a dozen felt-tipped pens in her hands, ready for another attempt at communication with the stranger.

“What are you doing here?” she demanded. “Why aren’t you in school?”

Freya moved awkwardly away from the bed. “It’s Saturday, Mama.”

“Well, you shouldn’t be in here, bothering our guest.”

“I’m not bothering him,” she said at once. “Alph and I were just talking.”

“Don’t—did you call him ‘Alph’?”

Freya nodded slowly.

“Why?”

“It’s his name.”

“You mean you just decided to name him, as if he were a doll.” Her mother’s voice was full of scorn.

“No,” Freya said, stung. “He told me it was his name. Alph told me.”

“Freya, are you telling me the truth?” Her mother looked so sternly into her face that Freya could not back down now.

“Yes,” she said.

Edwina set the drawing pad and pens down on the bedside table and leaned close to the man in the bed. “Alph,” she said to the deeply tanned face.

“Alph?”

His lips moved slightly, as if he would try to mimic her, and then his head, propped up against two fat pillows, nodded.

Edwina laughed. “Alph!”

She looked at her daughter. “Can he speak. Has he spoken to you?”

Freya shrugged and moved uncomfortably, twining one leg around the other and nearly falling off balance.

“Stand still, Freya! What did he say? *How* did he tell you his name was Alph?”

“He just told me, that’s all. I don’t remember what he said, exactly.”

“Freya,” said her mother in a deceptively gentle tone, “Are you making this up? Are you playing a game?”

Freya shook her head. “I’m not a baby. I’m not pretending. It’s the truth.”

“All right, dear. I believe you. Can you get Alph to talk to me?”

Freya looked from the man in the bed to her mother’s intent face. “I’m not sure,” she said.

“Try, Freya. Tell him we won’t hurt him—you know we won’t. We want to help him. Ask him to trust us, as he’s trusted you, and talk to us. I think he might feel more at ease with me than with your father,

at first, so if he could just speak to me . . . ?”

Dutifully, Freya crouched beside the bed. She touched the stranger's hand. She told him to trust her mother, to talk to her, to tell her about himself. She could feel her mother's expectations pressing like a weight on her head, and if she could have made words come out of the stranger's mouth she would have. She knew what her mother wanted to hear. But the stranger only looked at her and would say nothing.

“I think he's confused,” Freya said. “Maybe he *can't* talk when you're in the room. I'm not sure what it is.”

“But he talks to *you*,” Edwina said. “Well, you tell me what he says. I'll leave you two alone now.” Her voice casual, Edwina went out, closing the door gently behind her.

Freya knew her mother was waiting outside the door, her ear pressed close to the wood. She could almost hear her breathing. Freya looked at Alph. He said nothing.

That night it was different. When the house was still at last, and she knew her parents were asleep, Freya went quietly across the hall into Alph's room and then, at last, she knew he would talk to her.

Wrapped in the soothing darkness of the room, lulled by the soft rhythms of her own voice, Freya fell into a sort of half-sleep. She couldn't be certain if she were talk-

ing or only dreaming of talking, and at times her voice changed in her ears so that she thought it came from another part of the room. It might have been herself speaking, or Alph, or someone else entirely.

“Do Alph's people often travel to Earth?” Edwina asked.

Freya nodded. Alph sat, quietly as ever, in the big armchair by the window. Although his eyes stayed on Freya, it was hard to tell what he actually saw; impossible to say what he might be thinking.

“Was he in trouble when he first came to us? Was he sick? Why couldn't he communicate with us?” Edwina sat tensely, her eyes flicking from Freya to Alph.

“He was hurt a little in his mind—he wasn't used to the way people think here. It was such a jumble that *he* couldn't think straight. He lost his way, he stumbled around, like he was dizzy. It was like a constant loud noise that he couldn't shut out. He's learning to understand us a little better now, though.”

“But why can he talk to *you*, Freya?” Why won't he talk to me? asked her eyes.

“I don't know. He says my mind is clearer—”

“Because you're so young, no doubt,” Edwina said. “Your mind isn't all cluttered up with grown-up emotions, or doubts or knowledge.”

She leaned forward again and took Freya's hands in hers. "What does it feel like when he talks to you, Freya?"

Freya shrugged. "It's just like listening to anyone," she said. "You. Or Daddy. Or myself."

Edwina looked at Alph. "I'm sure I could hear you if you spoke to me, Alph," she said. "Won't you try? I want to help you, you know."

Alph looked at Freya. Freya dropped her eyes.

"Leave us alone together, Freya," Edwina said. "I have some things to say to Alph. You go on up and do your homework now. What are you waiting for? And close the door behind you. I don't want to be disturbed."

Edwina looked at the man in the armchair. He seemed to lose a part of himself when Freya went away, she thought. He seemed frightened, looking from Edwina to the door and back again. Confusion had dropped like a mist across his features. Edwina knew, even before she began to speak to him, that it would be useless. He would hear nothing she said.

"You're going to have to talk to her," Freya said. Alph watched her as intently as always. Sometimes Freya thought she was the only person in the world that Alph could see and hear.

"You have to tell her the stories she wants to hear, the things we talk about together. You have to start talking to *her* now. If you don't, she'll send you away. She told me she would send you away."

"Will you, Alph? Look," she said, her voice becoming pleading, "Don't you want to stay here with me? All you have to do is talk to her—you know what to say. And we'll be famous if you do—we'll both be famous. But otherwise, if you don't talk, they won't believe me anymore, and you'll have to be sent away."

"Alph, will you? Will you talk to her and tell her all about your planet and everything?"

Alph still just looked at her, the way he always did, but Freya was sure he understood. She had a feeling, a strong feeling, that he would start talking now.

He didn't speak so well, he told Mrs. Hudspeth, because on his planet words were not the style. They talked mind to mind and heart to heart there, but on this world that didn't work so well, and it took him awhile to adjust. The violence, sickness and ignorance of so many minds had come as a shock to him and made him sick. He was very grateful for the care the Hudspeths' had given him, he said. And he was very grateful to have met Freya. She was a very special person.

They could speak together heart to heart and mind to mind, he and young Freya. She had a mind as sharp and pure as fine crystal.

"He kept going on and on about Freya," Edwina said, pacing the floor of the study, her blue velvet gown swirling around her ankles, her long white hands clasped tightly before her.

Frank sat behind the big desk, his face in shadow. Edwina did not look at him.

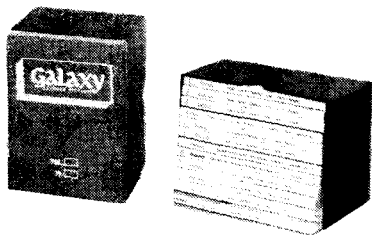
"Finally I asked him if Freya's specialness set her apart from the rest of humanity—if she might not be the child of some other race. I told him about my—encounter—and he didn't seem surprised. As if he already knew.

"But he said that you were definitely Freya's father. He said her difference, her specialness, *might* be accounted for by her pre-birth experiences—some influence absorbed from the aliens. Or," Edwina stopped walking. Her clasped hands rose to her chin. "He said that *I* might be the reason. He said Freya might be special because I am her mother, for I am a very special person, too."

Edwina fell silent at last, waiting for Frank to comment or to question. But he said nothing, and she began to feel uneasy. She could not even read his face, half in darkness as he was.

KIN TO KASPAR HAUSER

THIS SPACE RESERVED FOR GALAXY



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"Well, I suppose there's no point in us talking about him now," Edwina said at last, trying to pretend there was nothing unnatural in Frank's silence. "You'll have to talk to him yourself. I didn't ask, but I'm sure he'll take to you—I'm sure he'll answer any questions you have. He's being very cooperative." She waved a hand at the books and papers stacked across the broad face of the desk. "That's what you need—first-hand information, so you can really get started on your new book!"

"I haven't decided what my new book will be yet," he said quietly.

"Haven't decided? Well, the subject of your next book is living upstairs," Edwina said playfully. "Frank, what *is* the matter with you? You should be as excited as I am—this is the story we've been waiting for!"

Frank sat forward with a sigh. The light from the desk lamp slashed a yellow bar across his face, but he kept his eyes down. "I don't believe in Alph," he said quietly. "I don't buy his story."

Edwina stared at him in disbelief. "How can you say that? If you'd only listen to him—"

"I have. I came past the room while he was telling you the story of his life. I almost came in, but I—" he shook his head. "Listen to his voice, Edwina. Listen to the way he talks. He's got a Mexican accent—he's struggling with it, but it's there. When he fumbles for

words he half-says the Spanish ones while he tries to remember the English." He looked up into her accusing eyes. "And listen to his *words*, Edwina! My God, a more absurd conglomeration of wishful thinking I never—he's saying what will please you. He's saying what you want to believe, about universal friendship and hands across the galaxies, and the cheapest science fictional fantasies about life on his Utopian, telepathic world.

"I don't know why he's doing this, whether he's a con man or crazy or believes it himself, but it's all a pack of lies. I certainly won't write a book about him—I would have to be either cruel or silly to do that."

"I believe him, Frank," Edwina said. "I believe *in* him. What do you think of me for that? Does that make me silly? I know we have to be careful, but you're being deliberately obtuse. Why would some Mexican tell us a story like his? What could he hope to gain? I don't think he has a Mexican accent—you hear what you want to hear. Because he looks Mexican to you—you said so from the start—you assume his fumbblings to form words in English sound like the fumbblings of a man accustomed to speaking Spanish. How would you know what a man who never spoke any language at all would sound like if he began to struggle through English? I don't know how you can be so deliberately deaf and blind to his truth."

"I don't know honey," Frank said. "He just doesn't feel right to me."

To please Edwina, Frank taped several interviews with the stranger, asking questions as probing and serious as if he needed the answers to convince the public. The problem was that this man Alph had nothing to back up his statements. Had no proof of anything—no spaceship, no alien metals or wonderful machines. He offered nothing but his fairy tales and Frank, who had always waited for something like this to happen, could not accept them.

Freya, now that school was out for the summer, was always at hand. She sat in on all the interviews, but always quietly and unobtrusively, seeming to drink in Alph's words.

Frank spent much of his time alone in his study, reading Texas history. He was digging tentatively for the topic of his next book—something biographical or historical, he thought. Something well-documented, factual and inarguable.

Freya had a feeling things were starting to go wrong. This placid time would not last much longer.

She and Alph went out walking one day, to the south pasture, near the dirty cattle pond where they sometimes swam. She knew something was wrong before he spoke. Something was bothering him—he

had been forgetting things, simple things, and her mother was beginning to notice. Her father might have noticed as well, but if he did he didn't care. But her mother had questioned Alph closely, and her mother remembered when he gave a different answer to the same question asked twice. He'd been able to blame the confusion on the language, but that excuse wouldn't last him forever.

They stamped across stubby grass, cropped by the cattle down to the roots, and Alph said, "I've been remembering other things, Freya."

She looked at him sideways, and brushed an insect off her face.

"I don't mean about the things we talk about—not about my home planet. Other things. It's like another life that I'm starting to remember. Or someone else's life."

Freya looked up and around at the huge blue sky. "That's called dreaming, Alph," she said. "You don't have dreams in your world. That's what is confusing you."

"But these memories come when I'm awake," he said earnestly. "They just float into my mind. Sometimes I look around and can't think what I'm doing here. I wonder what happened to the hospital, and I wonder about my wife . . ." He shut up abruptly and stared out at the distant horizon. Freya felt sick and sad. He was remembering one life and forgetting the other. He would be going soon.

"Then your wife's name, can you remember that? Remember some time when you were home and you heard your wife answer the phone. 'Yes, this is Mrs. . . .'" Frank leaned forward, his arms resting along his upper legs, his body tight and alert.

Alph frowned. "I think . . ."

Freya pushed the door open.

Her father looked around at her, annoyed. "Don't interrupt us now, Freya."

"I just want to listen. I won't talk."

Alph stared at the floor. Frank shrugged. "All right. Come in and be quiet." He looked back at Alph. "Go on . . . what do you remember?"

After a moment Alph raised his head, his expression changed. "I think perhaps I'm picking up someone else's thoughts. My mind is very sensitive, like a radio receiver, and it's still hard for me to separate the thoughts of people here. Sometimes I get confused—I think other people's thoughts without realizing it."

Frank looked at Alph as if he had suddenly pulled a dead rat out of his pocket.

"Now wait a minute," he said. "That's not at all what—"

"There may be another explanation for it," Alph said. "But I am satisfied with the one I've given

you." He stood. "I hope you'll excuse me—I'm feeling very tired."

Freya and Alph sat up late in the darkened guest room, talking. Freya was filled with sadness. Alph was fading away and another man was emerging—a man with another family and a past and future which did not contain her. He was still puzzled by conflicting memories, by his two separate yet united lives, but Freya knew. And she knew that he couldn't stay here much longer.

"Let's go out for a walk," she said, standing.

Alph stood also, and looked down at her. The face of the full moon was at the window. Freya turned to look at it, away from the stranger's troubled eyes.

"Come on," she said softly. "It's time for you to go."

"I think he probably went back home," Frank said. "He was starting to remember things—time spent in a hospital, and a wife waiting for him down in Juarez."

"What does it take to make you believe?" Edwina cried. "And now that he's disappeared you can say whatever you like and he can't refute you."

"He never tried to," Frank said. He looked at his wife's tight, unhappy face and rose from the breakfast table to go to her and hold her unresponsive body. "Honey, he's a mystery, all right? And he's gone

out of our life as mysteriously and abruptly as he came into it."

Edwina twisted in his arms as Freya came into the kitchen. "Alph," she said.

"I know," said Freya. "He told me last night he was leaving. He said he'd be back."

"He did? When? How soon?"

"I don't know."

"Why did he go? Did he say?" Edwina moved closer to Freya and Frank returned to his chair with a sigh.

Freya shook her head. "He said it was urgent. He said he had to get back, but that he wasn't leaving us forever."

"Then he will be back, I'm sure of it," Edwina said.

Frank looked down at his cold grits and toast. He was no longer hungry. His chair screeched on the linoleum as he stood.

"I'm going out for awhile," he said. He needed to walk; the exercise and the open air would clear his head of the melancholy he had picked up from Edwina. He looked at Freya. "Want to go for a walk with your old Dad?"

She shook her head, not looking at him.

"Aw, come on." He thought of all the aimless walks she had taken with the now-vanished Alph. "Do you good, Freya. We'll go down and look at Miller's cows and pretend they're ours. We could fish in the tank."

"There aren't any fish there. You

said so." She still wouldn't look at him.

She was missing Alph, he thought, and he was depressed that a stranger could affect her so.

"We could pretend," he said. "Don't you remember how we used to pretend?"

"I was a baby then," she said. She glanced up at him and then away again. "Pretending is for babies."

So he went out by himself after all, whistling up his dogs for company. He could think better by himself, after all, and that was what he needed to do.

He found the stranger floating face down in the filthy water of the cattle tank.

* * *

Edwina wanted the tank drained.

"He's already dead," Frank said, bewildered, his hand still resting on the phone he had used to call the sheriff.

"He was trying to get to his spaceship," Edwina said. "It must be at the bottom of the pond."

Frank stared at her as if he did now know her. He wondered briefly where Freya was, if she was listening, and what effect all this would have on her.

She had been very attached to the man. She needed some friends her own age.

"Frank, do you hear me? We'll have to call somebody in town,

somebody with the equipment. We should do it right away. It doesn't make sense to delay."

"It doesn't make sense to do it at all," Frank said reasonably. "There's no spaceship at the bottom of the cow pond—there wouldn't *be* a cow pond if something that big had dropped into it."

"We don't know how big an alien spaceship would have to be. It might be very small—no bigger than a car."

"Honey, that tank isn't any more than eight or nine feet deep. My Granddaddy dug it himself."

"Frank," said Edwina with deadly sweetness. "You've got to look at this logically. He told Freya he was going home. He had his spaceship hidden somewhere. He must have been trying to get to it when something went wrong. Why else would we find him drowned in a cow pond? There is no other explanation possible."

★ ★ ★

They all stared at the flat, muddy bottom of the drained tank, studded here and there with light-colored stones thrown in other days by Freya or by Frank.

"Guess the guy who died here must have walked in under his own steam," said one of the men from town. He spat. He had wanted to stop when the tank was half-drained—when it was obvious there

was nothing sizable there. But Mrs. Hudspeth had insisted they drain it.

She wanted to see the bottom.

"No car here," said the other man cheerfully.

Freya gazed straight ahead, seeing the pond as it had been shining almost black in the moonlight.

She had stood then where she stood now, on the high bank, and she had watched him.

"Go on," she had said gently when he faltered at water's edge. "It's all right. You have on a special water-suit, remember? The water can't hurt you—you can't even feel it on your skin. The spaceship is on the bottom. The door will open to the pressure of your thumb and forefinger. The computer will open the door and welcome you in. There's no problem."

"Why are you making me go?" he asked, still hesitating.

"Don't you remember what you told me?"

Her voice carried clearly on the still, night air.

"About the spaceship?"

She nodded.

"I came here in it—you called me to you. . . ."

"No."

"Yes. You made me come. I never understood how or why—all I knew was you. That I had to come to you."

The hair whipped across her cheeks as she shook her head sharply.

"Have you forgotten your own world?"

"I . . . I have to go back now." He looked up at her for confirmation, and she nodded. "I . . . I must go home to my people. I'll be back someday—as soon as I can—but now I have to go back in my spaceship."

He walked into the water.

Freya stood watching until he had disappeared, until the water was quiet and she knew he must have reached the bottom and found his spaceship.

"Goodbye, Alph," she whispered, the tears drying on her cheeks.

"Freya." Her mother's voice drew her back to the present. "He must have made a mistake," said Edwina, putting her arm around Freya.

"A terrible mistake," They walked away from the muddy site, leaving Frank to deal with the men from town.

"I wonder if he was in touch with his home world," Edwina mused. "If he was in touch with them, and they knew he was coming home, then perhaps when he doesn't show up his friends will come looking for him." She tightened her grip on Freya. "Well, no matter what, we have a book to get started on."

Freya felt a glow of warmth begin inside. She had a feeling—a certainty—that she would be helping her mother write this book. ★



Passport For A Phoenix

by Steven Utley



In a struggle to save the human race from extinction this Phoenix had but a single ally—Death.

WRAPPED IN FLESH, or in something which gave the impression of flesh, Death came over the low horizon, across the perfectly level plain, to where I sat upon a dais-like rock. The rock was the one blemish on the surface of the land. There were no stars in the black, utterly black sky, no clouds, nothing at all.

Death halted before and slightly to one side of me. Its cloak rippled animatedly, though there was no breeze. The golden almonds of its eyes glistened in the sockets of its serene androgynous face. Death's mouth was a wide, lipless seam located somewhere below the merest hint of a nose. The mouth opened, and Death said, We are very near the end now. You surely realize this.

Yes. I've known it for some time.

Are you ready to take my hand now?

I looked at Death's strong, colorless fingers and shook my head. In

a few minutes, perhaps. Or a few hours.

What difference can a few more minutes or hours possibly make?

Indeed. What difference?

Death made a small, soft sound very like a sigh, half-turned and indicated the featureless plain, the empty sky, with a wave of its hand. What can you do? it demanded. I have wound down the universe around you, nibbled it away, taken everything save what you see before you. Soon, even this will be gone. What can you do?

You can't touch me, I reminded it, unless I ask you.

Something flared behind each of Death's eyes, twin miniature suns going nova. The corners of its mouth quivered angrily. I can take you whenever I choose!

But you won't. You don't want to take me. What satisfaction would that give you?

Death was silent and unmoving for a long time. Then it shook its head sadly, helplessly, and said, None. No satisfaction at all.

It won't be long, I said, as gently as I could. I'm tired. I want to rest. I have one last thing to do. Be patient.

Again the hand was offered. You have no choice, Death said. No choice at all.

Light glimmered on the horizon to my right. Streaks of gray light stabbed upward into the darkness.

I have to go now, I said, rising.

Why?

To try again. I have to try again.

It isn't worth it. I can give you peace now.

I want atonement first.

Death's hand dropped to its side. The mask did not change, but I sensed, somehow, that the expression behind it was one of faintly exasperated resignation. You'll be back soon, Death called after me as I walked toward the edge of the universe.

Yes, I called back. I'm sure of it. Soon.

When I reached the horizon, the razor-edged rim of the disk that had become my world, I paused for a moment to look down into the milky glowing orb hanging in the darkness below. The orb dimpled, opened up and became a ring of light, the mouth of a tunnel. I stepped forward, off, away, and fell toward it, into the heat, a phoenix diving toward its funeral pyre, and I did not stop falling until I had emerged, unseared, untouched by any flame, at its far end.

Cool, efficient fingers were adjusting the straps when I regained consciousness. I lay listening to the hum of machinery, the muted whir of duct fans trying to suck the stench of sweat and other effluvia—mine, all of it—from the air in the room. Light from the ceiling seeped pinkly through my eyelids. I counted slowly to twenty, then let them flutter open.

Faces above me: serene androgynous masks with golden one-

way lenses for eyes, wide, immobile mouths without lips; the face shared by my three interrogators.

There had always been three of them, since the first. Whether the people behind the masks were always the same, I could not tell. I had no way of telling, no way of keeping track of them as they moved into and out of my field of vision, no way of knowing how much time I had spent on the inquisition table. But each of the three appeared to have been assigned a definite role to play.

I had given them the names of the ancient Fates.

Atropos, the Unchangeable, stayed in the background for the most part, never speaking, never taking part in the proceedings. Even so, Atropos struck me as the most sinister and terrifying of the three. Atropos did not care what I might say or not say on the table. Atropos, severer of the thread of life, waited only for me to die.

Lachesis, the Disposer of Lots, was the one who actually handled the knives and needles, who decided where the electrodes were to be placed on my body, who lovingly and knowledgeably plied the trade of torture. Lachesis wanted me to break, to beg for mercy, to protest the unfairness of my predicament.

Clotho, the Spinner, played a relatively sympathetic part. Clotho wanted me to give in, tell all, and thus spare myself further misery. I

was willing to oblige Clotho, and I had already done so, in fact. But Clotho wouldn't believe me, having been led to expect nothing but lies from me, and I, having been trained to tell nothing but lies, I couldn't make her or him believe me.

Clotho's mask now hovered just above my face, its mouth and mine almost kissing.

"You have nothing to gain," the Spinner said in an imploring tone, "nothing at all, by refusing to tell us the truth. What my colleague here"—the mask glanced politely at Lachesis—"has done to you is but a taste of what *can* be done to you."

"Can and *will*, traitor," Lachesis put in, "unless you tell us what we want to know."

Clotho nodded solemnly and began caressing my slimy cheek with a velvet-sheathed hand. It felt good, soothing. It was supposed to. "You must believe me when I say that my colleague is quite merciless. We are prepared to go to any lengths to obtain the information you persist in withholding from us. We have at our disposal here a truly impressive array of interrogation techniques. Some of them date back to ancient times."

Yes, yes. I had heard all of this before: it was the Spinner's litany; there was no telling how many times I had had it recited to me since being put on the table, but I knew most of it by heart now. We have a crude but time-honored de-

vice known as the thumbscrew. We can put you on a thing called the rack and pull your arms, your legs, out of their sockets. We know how to break ninety percent of the bones in your body without killing you. We have only begun to show you what we have in our inventory of pain. We can kill you by slow degrees, and we will if you force us to it. We have a lot of time, infinite patience, and we have you.

I opened my mouth. It hurt. "I've told . . ." My voice sounded thick and strange. I moved my jaw experimentally, wondering what Lachesis had done to it during my last absence. "I've told you the truth. What you need to know."

Clotho continued to stroke my face. "Preposterous lies. We want to know what really brought you to Earth, what your orders were. What you were supposed to accomplish here, and how."

"I came to warn you."

Lachesis raised a metal-gloved hand to show me the instrument attached to the top of the index finger, then lowered it. The instrument came to rest somewhere on my torso. I gave a cry, writhed on the table, tried to push my body through it, away from the source of the sharp, gnawing agony. I could have escaped by simply letting go of my flesh and returning to my dais-like rock, but I didn't. I had rested there. I had returned to the table knowing what to expect. So I bore the pain until Lachesis saw fit

to remove the hand. The pain took its time going away.

"The truth," whispered Clotho.

I sucked in a ragged breath. "The truth. I am the . . . sole survivor of the colony . . . on Vega IV. . . ."

Above me, Lachesis made a sound like a cat spitting.

"The colony," I went on, "and the settlement on the larger moon was gone. Destroyed."

"Wiped out," Clotho murmured, "by an invasion armada of unknown but certainly not terrestrial origin. So you've told us. Now—"

"It's true," I moaned. The Spinner beckoned to the Disposer of Lots. I closed my eyes and was thinking longingly of my faraway rock when the pain exploded in my head, too intense, too sudden, for me to effect escape.

"You must believe me," I managed to gasp when Lachesis drew away. The Disposer of Lots had been working at the tender tissues lining my nasal cavity with a delicate needle-bladed instrument. I sniffed carefully. There was no blood.

"You are a spy," Lachesis said harshly.

"An . . ." Clotho rubbed metal lips thoughtfully. "An operative. I-and-E. An intelligence-and-espionage agent of the Vegan Colonial government. Do you deny this?"

"No. I told you that myself. Before."

"Do you deny that Vega IV has been conducting intelligence and espionage activity here on Earth, with the intention of subverting the authority of—"

"I deny it. I deny knowledge of it." I paused, gathering breath and strength. "There was a separatist *faction* in the Vegan colonial government. I was investigating a member of that faction, in the service and interest of Earth, when the invaders appeared out of nowhere and razed everything to the ground. The fact that I was . . . my being an agent had *nothing* to do with my coming here. I was the only one left, the only one who could come. I identified myself as an agent of the Vegan Intelligence Network immediately upon my arrival. Prior to planetfall. Use your brains. If I'd come here to engage in subversive activities, would I have established at the first that I'm—that I was employed by the VIN? I'm telling you that the VIN no longer exists. The invaders obliterated it, along with the government and the separatists and everything else."

For an instant, the two Fates locked eyes across me, and for just that instant I thought that I might have gotten through to them at last. Then Lachesis repeated the cat-spitting noise.

"What do you hope to gain by this?" Clotho.

"Who were you to meet on Earth? Names." Lachesis.

"What was your objective?"

"To warn Earth. To give you time to prepare defenses."

"Lies." Flat, dead, deadly, the voice of the Disposer of Lots. "Lies. There was no armada. You came here to meet certain people. You came to help them undermine the authority of Earth."

"The armada is real. You must believe me. If the invaders come—"

"Absurd." Pitying, the voice of the Spinner. "Come now, be reasonable. It grieves me, you know, to see you in torment, and needlessly so. In the end, we'll have the truth. We'll get it, one way or another. There probably won't be much left of you by then. Remember that we have a vast number of diverse interrogation techniques at our disposal. Old and new. The thumbscrew, the rack, the nerve-needles, the burnbuds, the boot, the psychpick. Why—"

"I'm telling you the truth!"

Clotho nodded to Lachesis, who jammed something under my sole remaining fingernail. I screamed.

"The truth," said the Spinner.

I sobbed out the truth. Invasion armada. Five hundred or a thousand vessels. Origin unknown. Vega IV scoured clean. The lunar settlement destroyed. My hairbreadth escape. The three Fates listened patiently, believing none of it, soft-spoken Spinner, cruel Disposer of Lots, silent Unchangeable. When I had finished, Clotho's velvet hand was on my face again.

"Our friend here," Clotho said

to Lachesis, "patently isn't going to yield under pain of mere physical mutilation. Perhaps the time has come to use the psychpick."

Lachesis shook her head, or his. "Let us proceed patiently, step by step. The pick will shatter the mind but leave the body untouched. Use up the flesh first."

I heard a faint clink, metal on metal. Lachesis' gauntlet rose into view. There was still another attachment mounted on the forefinger.

"How can I make you believe me?" I asked wearily as Lachesis touched me. No one bothered to answer. I felt the careful nip of something sharp, felt skin part. With a mental shrug of disgust, I cut myself free of flesh and went back to my rock under the blank night sky. Death was standing where I had left it. The golden eyes glittered hungrily as I seated myself, but the hand was not offered. The horizon seemed lower than before. Lower and closer. Beside me, Death smiled fleetingly.

You're too smug to bear, I told it, turning my back.

* * *

I had been tortured once before, on Vega IV—tortured for real, by a man who lacked the Fates' arsenal but not their zeal, as opposed to tortured for training. The man had done his best with a few superheated instruments. He had known what he was about, but he

picked the wrong subject: the whole thrust of VIN's training program for intelligence-and-espionage field personnel was in the general direction of stoicism. If the pain was bad, I could live with it; if it was worse, I could retreat from my nerve endings until it got better; if it was worst, I could phoenix—make myself die. But, bad or worse, I would never come out from under my cover, never give the game away, never spill my guts.

The man with the superheated instruments had just made the transition from bad to worse, and was surely planning on sending me the whole way, when my back-up arrived and shot off a piece of his face. Even then, this timely interruption notwithstanding, there wasn't much left of my own face.

I lost the six months which followed, four of them in a clinic where I grew a new face, two on mandatory post-operation (in two senses of the term) leave, a rest-and-recuperation junket to Gardenspot in the Southern Islands. Standard VIN policy regarding agents temporarily disabled in the line of duty.

Two months of getting used to a new face. It didn't please me nearly as much as the first one I'd had. The mouth was too much of a slash, the skin too tight on the cheekbones and at the temples. In mirrors, I looked meaner, grimmer, altogether too much like what I was. An old lover, somebody with

whom I have taken my VIN basic training, turned up in Gardenspot and found the new face exciting. We renewed our relationship for a while, long enough for it to be realized by both parties that the rest of me was the same as ever, no more exciting than it had been before. A new lover, a local, came along and didn't know the difference.

I swam, ran, kept busy, pretended to be having a lovely time for the benefit of the, ah, total strangers who were, ah, observing me. VIN was always anxious to see how close calls affected its agents. I would have been at Gardenspot for six months if I'd phoenixed. Dying, even temporarily, was never good for a person, trained agent or not.

Mostly, I read the faxesheets and tried to figure out what was happening up north. The separatist movement, spawned on Polyphemus, Vega IV's larger moon, almost fifty years before, almost as soon as that settlement had become self-sufficient, was still gaining ground in and out of official circles. Some politicians were hinting broadly that the time had indeed arrived for Vegans to sever Earth's apron strings—peacefully, of course—and go their own way in the universe. Some private citizens had become less circumspect in their denunciations of the colonial government. The home-grown separatists had their staunch supporters on Earth, too.

Anti-empire sentiment was becoming fashionable.

I sifted through the faxesheets and learned that things were really starting to come unglued. The demonstrations and acts of political vandalism had begun. *WHO NEEDS EARTH?* someone had scrawled on a wall of the governor's mansion in New Portland. The riots were just beginning. Separatist-minded industrialists on Polyphemos had closed down their mines, with the support of the miners. There had been a short-lived mutiny aboard the *Slothrop*, a Terran-owned, Vegan-operated ore freighter based on the moon.

The secret war was already well under way: VIN, by the authority vested in it by Terran Network Central, had been keeping tabs on separatists and fellow-travelers for more than forty years; during the past twenty-four months, however, VIN had progressed from mere surveillance and petty harrassment to carefully engineered scandals, studiedly malicious industrial sabotage, an occasional discreet assassination. And, as I knew from personal experience, to some bloody encounters with separatist agents. VIN was walking a tightrope now, doing its best to undermine the separatist cause on Vega IV and, at the same time, keep Central from letting the Terran Intelligence Network take over. Networks within networks. Nothing but politics.

Finally, my Gardenspot time was

up. I had a last night-long tumble with my new lover, packed my bags and went gratefully to the airport. I forgot the lover's name, put the details of the whole two-month period out of my head, as soon as my plane lifted off and away to bear me north, back to New San Angeles and VIN and work.

Naomi Sizemore had a car waiting for me when I got there.

Naomi Sizemore operated out of a sparsely furnished office on the second floor of VIN's New San Angeles headquarters. She had been there, from all accounts, for more than twenty years; I never saw her outside that one room, and if she had ever left the second floor for any reason at any time, no one I'd talked to knew of it. She was a big-boned, broad-shouldered woman, as dark and as hard as teakwood. As always, she was seated behind her desk when I entered the office. She didn't look up. Spread like a fan across her desktop were the contents of several folders.

"Good to have you back," she muttered as I closed the door.

"It's good to be back."

Sizemore grunted softly, the best she could do or had ever done in the way of laughter, and finally favored me with an inspection. When she finished, she let her gaze drop back to the papers before her.

"You look a considerable bit less grisly than I remember," she said. "Ornish showed me some pictures. Pictures taken of you after your

back-up brought you home. Ugly."

"I never got to thank him."

She shot me an astonished glance. "What?"

"I didn't get to thank my back-up for showing up when he did."

"Don't be a sentimental asshole. He was doing his job. And not very damned well, either. He should have arrived twenty or thirty minutes earlier than he did. Before you took your first cut."

I remembered that first cut and shuddered. Fortunately, Sizemore was looking at her papers again.

"Anyway," she said, "don't waste your time looking around for him. He phoenixed on an assignment about eight weeks ago. He didn't come out of it."

"But . . . why? How?"

"Does it God-damned *matter* what he did wrong?" Sizemore stabbed a finger at me savagely. "He messed up. He opted for the phoenix route when he shouldn't have, he didn't do it right. And now he's dead, irrevocably dead. Frankly, he won't be missed. You and I and VIN have more important things to think about."

"Yes. Of course. I . . . it's just that. . . ."

Her eyes fastened on my face. Like iron claws. Or superheated pincers.

"Nothing," I finished lamely. "Never mind."

She stared at me for a moment longer before nodding slightly, apparently satisfied that I would not

be a sentimental asshole. She plucked up a sheet of paper by its corner and let it dangle between thumb and forefinger. "Now. You've never been to Polyphemus." It was not a question. "That changes as of 0800 tomorrow. The lunar settlement is becoming"—a bleak grin—"unsettled. You surely heard that the miners called a strike. And about mutiny aboard an ore freighter called the *Slothrop*."

"I read a lot of faxsheets in Gardenspot."

Sizemore nodded again. "So I heard. Well. You're going to Polyphemus tomorrow morning. Paula Crist and her friends have been busy up there."

I started. "Crist? On Polyph—"

"She took up residence there a month ago. Slipped out of New Portland without so much as a by-your-leave. Gave us the shake for forty-eight hours, and forty-eight hours too soon. We'd had plans for her."

I didn't bother to ask about that. I knew any number of ways in which VIN's plans for Paula Crist might have been carried out. Nothing so crude and obvious as a bullet or a hit-and-run or a plane crash for as prominent and outspoken a separatist as Paula Crist. A heart attack, maybe. Or a specially prepared meal: people still choked to death on misrouted food.

"How did she know?" I asked. "About the plans."

Sizemore frowned deeply. "You missed a lot. We plugged a leak in VIN security eleven days ago. Anyway, Crist is with her friends on Polyphemus, where we'll have no little trouble getting at her. Lots of faithful bodyguards. She has one of the most powerful anti-Earth industrialists on the moon looking out for her. Mister No-Tithe-For-Terra himself."

"Brian Subotsky."

"Yes."

"What am I supposed to do?"

"Crist still needs killing. If you can penetrate her screen of bodyguards—we're working on that now—her death on the moon should actually do us more good than it would have on-planet. The settlement's already stirred up. The strikes, the *Slothrop* mutiny. Loyalists fear for their lives. If Crist dies, and dies in such a way that, one"—Sizemore bent back a finger, counting off—"it cannot be *proved* that we had anything to do with it, and yet, two, it can be *suspected* by her paranoid friends that we're responsible . . . well, instead of sending in a single lightly armed deep-ranger to quell mutiny aboard an ore freighter. . . ."

She let her voice trail off and gave me an expectant look.

"The governor," I said, "would send in the Fleet to put down a full-scale armed insurrection. Loyalist lives and property would have to be protected, the peace preserved."

"Exactly. On-planet, the public would stand by the governor. Ramington and the other pacifistic separatists would be damned by the insurrectionists' violence." A quick grin of triumph touched the corners of Sizemore's mouth. "The separatist movement will be smashed, we'll have demonstrated once and for all that VIN can police its own planet, without interference from TIN, and . . . and that will be that."

"And then . . ." I bit off the uncompleted question. *And then, what?* I had been a VIN agent for five years. Half a decade of field-work in the worst interests of the separatist cause. VIN itself had been in existence for forty-eight years. Half a century, almost, of keeping the colony running smoothly, or reasonably so.

If Sizemore was right, if Crist died, if everything turned out the way Sizemore said it would . . . if the fifty-year secret war finally ended . . . what then?

Cutbacks, gradual but inexorable. Entire sections phased out of operation. The Vegan Intelligence Network demobilized, its work having been done, its enemies vanquished, the purpose for which it was created served.

Or.

A whole new war. With new enemies.

And who would the enemy be?

The answer, of course (*of course?*), was: Terran Intelligence Network. The pushy men and

women who could not accept that VIN knew best how to deal with Vegan internal disunities.

The schism between the two organizations had widened at an alarming rate during the past couple of years, widened in direct proportion, it seemed, to the rising intensity of separatist activism. Politics. Inter-organizational rivalry.

And, at the heart of it, not a little professional jealousy. For reasons known only to the heads of TIN (Sizemore's favorite joke; perhaps her only joke), learning to phoenix was not part of a TIN basic-trainee's curriculum. TIN had flatly rejected the phoenixing technique, possibly because they didn't consider it vital to agent survival or couldn't understand it, possibly because it was a VIN development.

Whatever the reasons, the result was that TIN had lost a lot of people in the field. Permanently.

VIN had lost some. Not many, and not always for good.

VIN *versus* TIN, then. It wouldn't be a war for field agents, no killings, no torture, no nastiness. Not at first, anyway. It would come down to sniping on the bureaucratic level. Surveillance and petty harassment.

Full circle.

Not for me, I decided. I preferred to fight real foes.

I shook off my VIN-*versus*-TIN fantasy—it had to be nothing more than that, I told myself, a fantasy.

“When should Crist die?”

Sizemore exhaled noisily. “Soon. Before things can grow quiet on Polyphemus. We'll know exactly when you're going to do it after we've figured out how to get you close to her.”

A thought occurred to me. “What if . . . is there any record of her having trained to die?”

“No. Good question, though.” She gestured at the papers on her desk. “There are so many gaps in our Paula Crist profile. Things I'd feel safer knowing. Where was she, what was she doing, during the eleven-month period between the Boyd incident and her sudden reemergence in New Portland last fall? On Earth? In a hidey-hole in the building across the street? Trial-phoenixing on some island retreat in the southern hemisphere? In all, thirty-one months of the past six years of her life are a complete blank. Where does she go? What does she do?” Sizemore made a face. “How come I know what she eats for breakfast and what she likes in bed, but not where she vanished to?”

“Will it matter,” I said, very quietly, “once she's dead?”

Sizemore forced a shrug. “No.” Meaning: Yes. Sizemore did not like enigmas. “Anyway. You must be sure to kill her irreparably. Totally. Without warning. It may have to be a messy death.”

“Perhaps. Phoenix or not, there are still many ways a person can die

without hope of resurrection.”

You spoke of atonement, Death said, not looking at me, not looking at anything in particular. Atonement for what?

You should know. You must know.

Ah. Of course. The people you killed. Death laughed softly. It was a liquid sound. I was reminded of the noise water makes as it gurgles down a drain. They're dead. Everyone dies.

That doesn't make it any less unpleasant.

A strange attitude for one of your particular background. A spy. An assassin. A phoenix.

I've had too much time to think about those people. They're gone forever. Ended. No coming back for any of them. I took their lives in the line of duty. And now my duty . . . there's nothing left to justify those killings. My cause died with Vega IV.

If you had not killed them when you did, the invaders would have taken care of them later. Death shrugged within its cloak. Either way, it doesn't matter. Everything has to end, sooner or later. People's lives, causes, worlds. I alone am inevitable and eternal. Even for a phoenix, one who dies ten, a hundred times, there is no such thing as inevitable resurrection. The phoenix will rise nine or ninety-nine

times. But never the tenth. Never the last.

I got to my feet. The horizon was less than a dozen paces away.

You don't have to go back, Death murmured. Atonement is as pitiful a delusion as guilt. Or duty.

Do you ever lose patience? Have you ever felt . . . cheated?

No one has ever cheated me.

I walked away. Pausing at the edge of the universe, I said, over my shoulder, How boring it must be for you.

And then, back to the inquisition table. Back to the Fates.

Atropos, as before, was hovering in the background, just at the edge of my proscribed field of vision, shadowy, sinister, unspeaking still.

Lachesis was moving about, checking various machines arranged in a close semi-circle about the head of the table. There was a snaky mass of wires and tubing clinging to my skull, a Medusa-crown connecting me to the machines. By cautiously flexing a muscle here, a muscle there, I discerned that the nerve-needle has been inserted—there would be a last round of purely physical pain to soften me up for the *pièce de résistance*, the psychpick.

Use up the flesh first, Lachesis had said to Clotho.

And Clotho? The Spinner stood waiting beside the table. Waiting gracelessly, it seemed to me. The velvet-gloved hands, drawn up against the breast like claws, could

not be still. The fingers kept twining, writhing, as boneless as worms. I looked up at Clotho's smooth gleaming face in surprise and wonder. Perspiring and worried, perhaps, behind the metal mask? Trembling and nervous within the loose gray robes?

Then Clotho glanced down at me, saw that I was awake again and forced him- or herself to be still.

"How can you let this be done to you?" the Spinner demanded, gesturing at the machines.

I managed the grin weakly. "I don't appear to have any choice."

"You can still save yourself. By telling the truth. Why are you on Earth? Who were you to meet? What was your plan?" I said nothing. Clotho leaned down into my face. "Don't you know what the nerve-needles can do? The psychpick? Spare yourself. Tell us everything about the separatist underground on Earth." Oh. So.

* * *

I centered the telescope-sight's crosshairs on the bridge of Paula Crist's fine nose, drew in a slow, deep breath and held it. Paula Crist, whom the Vegan colonial governor had publicly called "misguided" and, in private, "the single most dangerous woman on the planet," was a remarkably attractive person of sixty-one years, with alert eyes, high cheekbones, a sand-colored scalplock. She was engaged in con-

versation with none other than Brian Subotsky, over whose shoulder I aimed. Before I could pull the trigger, Paula Crist moved her head, seemed to look in my direction, to give me a droll smirk across a distance of a kilometer. I shifted the crosshairs a fraction of a degree, compensating for her movement, and blew her head off her shoulders.

I set the last plate of food, the compote, on the table, placing it carefully between Paula Crist's forearms. She murmured thanks absently and smiled in response to a witticism from one of her three dinner companions. In the shadows, in the darkened corners of the dining room, were silent, glowering figures, the ever-present watchdogs who had committed themselves to the business of keeping Paula Crist from harm. I repressed a smile as I withdrew from the room, a flawless imitation of a waiter. From the corner of my eye, I saw Paula Crist take up a silver spoon and gesture with it elegantly. Then I was out of the room, moving briskly through the kitchen, to the alley behind the building. Paula Crist's metal utensil must have dipped into the compote as I was closing the door: there was a loud explosion, and the building itself trembled perceptibly.

I was a refugee separatist poet and scholar of somewhat modest accomplishments, and I was being introduced to Paula Crist at a large party at Brian Subotsky's palatial

house. Paula Crist and I shook hands in a perfunctory manner, mouthed a few banalities—strangers being polite to each other. There was death in the faint film of perspiration on the palm of my hand. Paul Crist died, as did selected others among Brian Subotsky's guests, within a few days, of something which the coroner mistook for botulism.

I was sitting before the control console of Terran Fleet Type I Deep-Ranger TF 861, watching the cold gray eye of Polyphemus grow in the televue, fantasizing Paula Crist's death, fitting her and other leading separatist figures into dead people's roles, the parts played by my past victims. Sterner, decapitated by a traser beam at one kilometer; the Boyds, blown up with a doctored dessert; Glendan Beutal and select accomplices, infected. Killing time.

I was twelve hundred kilometers out from Polyphemus, sailing along beautifully, taking my time. I had had twenty-one sleepless hours, and I felt great. There'd been briefings with Naomi Sizemore's people, a grueling session in the VIN biochem labs, where I adopted my invented-for-the-occasion persona, let myself be so completely absorbed by that new identity, that lie, that the real me couldn't be rooted out by psychpick or red-hot tongs. A whole complex plan had been conceived, worked out to the smallest possible detail, then set in mo-

tion in the space of a mere twenty-one hours.

It would have worked.

I was a flawless, *flawless* imitation of a highly qualified Fleet officer, thanks to injections of RNA culled from the real thing, and I was the sole person aboard a fully equipped Fleet deep-ranger. Type I: full traser complement; booster ram and faster-than-light propulsion unit; a marvelously sophisticated piece of hardware. On its way to Polyphemus to relieve TF 801, which had been locked in orbit around the moon ever since putting down the *Slothrop* mutiny. A routine changing of the guard.

Only the word had been gotten out, with the Vegan Intelligence Network's customary circumspection, that TF 861's crew of one might, just might . . . ah, well, what the more militant separatists could do with a deep-ranger, particularly if it should come complete with a highly qualified Fleet officer to operate it. An officer rumored to entertain certain small . . . doubts.

It would have worked. It would have gotten me into the good graces of the separatists and, thence, close to my target—not quickly, but soon enough. Everything would have worked out as planned. I would even have died convincingly, a traitor paying the price.

Damn it, it would have *worked*!

With characteristic unconcern for human affairs, the universe threw a curve.

At exactly 1000 hours, New Portland Time, 7-11-2293, TF 861's shipcomm said, "Attention, all Fleet vessels. Condition Yellow. Cruiser *Frampton* reports sighting fifteen unidentified craft of superdreadnaught mass in Sector 13, eight degrees above orbital plane, decelerating from light-velocity. Closing fast. Phase-in point unknown. Sector 13, status go. Proceed to interception point, coordinates following on private channels. Sectors 11, 12, 14, status ready. Sectors 8 through 10, status alert, hold your positions."

Followed by, "Sector 13 estimates time till initial interception four minutes, eight seconds."

And then, slightly less than four and one-half minutes later, by, "All Fleet vessels, all sectors, Condition Red. TF 39Q reports all other Fleet interceptors in Sector 13 destroyed. Sectors 11, 12, 14, status go, intercept, coordinates following. Sectors 8 through 10, status ready."

Vega IV's secret war between the separatist underground and Terran Network Central's two intelligence sub-networks was at an end, unexpectedly, prematurely, inconclusively. Permanently. I didn't know it then, of course. I didn't think about it. All I did, all I could do, was sit uselessly in my ship, mocked by the PROGRAM ACTION light flashing on my console, unable to accompany TF 801 when it broke away from Polyphemus and sped off to enter the fray, unpre-

pared to participate in space combat. I was no longer quite so flawless an imitation of the men and women in the Fleet: RNA was good only for so much. I sat listening in disbelief to the reports coming in over shipcomm.

The first fifteen vessels to pop into normal space out beyond the orbit of Vega V were halfway to IV, decelerating incredibly, at a rate which nothing *living* could have endured, when thirty identical ships showed up behind them, then sixty more, a hundred-twenty more, wave upon geometrically progressive wave of titanic warcraft, an unstoppable wedge plunging deep into the Vegan system. Berserkers from nowhere. Robot invaders, possibly, dispatched by some unknown, unsuspected alien race. Or—equally possible—a machine armada running out of control, creations which had outlived their creators and now moved through the galaxy. At random? In accordance with programs implanted millenia before, by beings long since extinct?

The *why* of it wasn't the most important thing at the moment. The universe was capricious. The invasion armada was upon us. People were being killed.

Shipcomm gave me a concise, inflectionless account of the armada's progress as it sliced into and through the Fleet. Sector 12's deep-rangers annihilated, one attacker reported crippled by concentrated traser fire. The cruiser

Frampton destroyed by the second wave of incoming super-dreadnaughts, one attacker reported vaporized. Sector 14's deep-rangers destroyed.

The *Maas* and *Mexico*, Terra-bound ore freighters, were overtaken a scant ten gigameters out from Vega IV. They had been accelerating toward light-velocity, but they were still moving too slowly to kick in their f-t-l units when the invaders met them head-on. I turned to my controls at this point and punched out PROGRAM: EXTREME EVASIVE ACTION—BOOSTER RAM ACCELERATION, and TF 861 began to angle downward from the orbital plane, removing itself from the armada's path.

The casualty reports continued without interruption.

Sector 11's deep-rangers, destroyed.

The cruiser *Lambert*, crippled. Distress calls. Silence. Destroyed.

Sectors 8 through 10, cleared of Fleet vessels.

The Vegan system, cleared of opposition.

Then the first wave began to swarm across the face of Vega IV, screaming down the skies, punching New Portland into the ground, New San Angeles, New Prussia. Scouring the New Texas subcontinent. Shipcomm hissed and was silent.

The gray eye of Polyphemus was starting to cloud over, a firestorm-shot cataract of smoke and dust raised by a patternless but de-

vastating bombardment, when TF 861's booster ram sent a scream the length of the ship. I punched out Earth's coordinates and escaped into the underregion of Time and Space.

Faced with a journey of more than twenty light-years' distance to Earth, I resolved to make the best of the two months, standard, during which I was to be out of phase with normal space. I had spent some time aboard orbiters above Vega IV as part of my VIN basic training. But, before the aborted Polyphemus assignment, I had never had a mission take me off-planet.

I had some trouble coping with protracted confinement aboard TF 861.

Type I deep-rangers had the same range capabilities as vessels of the freighter, cruiser and dreadnaught classes—near-infinite, theoretically. Unfortunately, deep-rangers had never been fitted with interstellar hops in mind. So there was a sufficient store of food on TF 861, plus other absolute necessities, but there was nothing to *do*. I had no tapes to play. I couldn't pass the hours staring out into abnormal space, because there was nothing at which to stare. Once the Fleet officer RNA had degraded, I had no borrowed memories through which to sift.

I exercised.

I thought about the horror from nowhere, shattering the Vegan system, pointing out the insignificance of the loyalist-*versus*-separatist squabble. It had been a consummate

invalidation of everything I had known, fought for, fought against.

I slept a lot.

I thought about the several men and women who had died by my hand, figuratively and, in Glendan Beutel's case, literally, and woke from dreams to find myself mumbling apologies to ghosts, *I'm sorry, I killed you for nothing, I'm sorry . . .*

When I could no longer sleep, I used my training and forced myself to surrender consciousness. I wandered through my own lush interior landscape, a realm of mountains, rivers, woodlands, blue skies. The phoenix's place without pain, the private universe between consciousness and the funeral pyre. After a time, however, I realized that I was no longer alone. My old victims haunted the forest paths, aimlessly zombie-walking through the gloom. Strange vessels blackened the skies. There was a secret war in progress here, too. I caught glimpses of Naomi Sizemore, Paula Crist, various VIN, TIN and separatist agents I had known or know of on Vega IV. Everybody was trying to kill everybody else; there was no reason or rhyme to any of it. Ultimately, I abandoned this newly cluttered realm to the ghosts.

TF 861 phased into normal space well outside the orbit of Earth and braked for hours, time I spent in the deceleration sling with my eyes glued to the teleview. Earth was a bluish smear of a world. It looked

very much like Vega IV. I imagined the invasion armada descending upon it like locusts and mentally rehearsed my warning: We must be ready, an incomprehensible force is loose in the universe, we must be prepared to meet it, to turn it aside.

A Home-Fleet cruiser called for identification. I responded with the necessary information, was given clearance and escorted by two Type G deep-rangers to an orbiter above Earth. When I had emerged from Decontamination, two Network Central officers took me to a debriefing room where, once again, I gave my name, VIN rank and code, a quick explanation of my Fleet dress and vehicle, a breathless and—at last, without warning, because the dam inside me had to give way at some point—tearful account of the death of Vega IV. A glass filled with an amber-colored liquid was brought to me, and I gulped it between wracking sobs. My vision blurred; the drink was drugged. I thought I knew why. I looked up into the officers' sympathetic, compassionate faces. *You are a brave and loyal person*, the faces seemed to tell me, *and you have been through a lot. Rest for a moment. Rest.*

I woke up on a table. Someone in a metal mask was peeling back my first fingernail. It was a consummate invalidation of everything. . . .

Every nerve in my body sang its own song of agony. Lachesis was withdrawing the needles, wrenching them out of my flesh with angry jerks. The Unchangeable had not moved.

I turned my eyes to Clotho's mask. The metallic features seemed to sag with fatigue. The Spinner's voice was hoarse.

"We know for a *fact* that there is a strong separatist movement on Vega IV. We know for a *fact* that separatist agents have been infiltrating the VIN."

"Was," I croaked. "Were."

Clotho ignored the interruption. "We know for a *fact* that separatist agents and sympathizers on Earth are trying to subvert the authority of Terran Network Central. *Facts*. The truth. No armada. There are no malign alien beings lurking just beyond the empire's boundaries. Armageddon never came to Vega IV. Do you take us for fools? *This is your last chance.*"

"I . . ."

"What?" demanded the Spinner, the face close to mine. "Speak up! Tell us who, how, when. Tell us."

"It's over," I said. "All of that. It's over. Doesn't matter now. Separatists. Loyalists. Not important. Armada changed all that. Changed everything."

"We're going to use the psychpick on you now."

I shut my eyes, afraid at last. Not of the psychpick. If I were under cover, the psychpick would tear

apart my false persona, turn my brains into so much inert pudding, and I would expire in character, a credit to VIN training, leaving an interrogator no wiser than before. As things stood, I would just die. Without hope of resurrection, and in the knowledge that I had failed to convince my tormentors, failed to justify my own pain.

To die that tenth time. That last time, for all time.

It was, I realized abruptly, my only hope.

"I don't have to submit to this," I said.

Clotho drew back, obviously startled, and looked at Lachesis, who grunted and shrugged and said, "Crumbling. Never mind it, the pick will sort it out for us."

"No." The word came out of my throat in a dry but emphatic huff of breath. "I can die any time I want. I could've died a long . . . long time ago. I don't have to be here. I can make myself die."

Lachesis laughed softly. "The VIN's phoenix thing. The death-trance trick."

Clotho nodded and clutched my jaw. Velvet fingers dug into my cheek. "You'll die soon enough, phoenix. Really die."

"My way."

"Go into your trance, then. It won't save you."

"No trance," I hissed. "Death. Real death. I don't *have* to endure this. I don't have to let myself be hurt by you. I could have suicided

at any time. I didn't . . . because I have to make you see that I'm telling you the truth."

Lachesis threw a switch. Machinery hummed. The psychpick began to bore into my mind.

"Listen to me," I begged, and then I made myself go down, like a stone dropped into the sea, falling from the light, falling into the blackness below, down to my place without pain. Suspended in the void, Death and the rock waited for me.

Well, I said, taking my place upon the rock.

It's all gone now, Death said unnecessarily. My work is almost done. Your private landscape, your causes, ghosts, guilt, all gone now. Meaningless.

I tried, though. I tried. Maybe, finally, I succeeded. They will check their machine when it fails to produce any results. Then they'll examine me. No heartbeat, no brain waves. No sign of life. Not a trance, I told them, but death, real death. Maybe they'll believe then. About everything.

It doesn't matter anymore.

Yes, it does. The Earth is at stake. It has to be prepared in the event that the armada does come.

Is that important? Death asked. Does Earth have any more significance than the causes you served on Vega IV?

I want to believe in something. If not the value and importance of what I did, what we all did, on

Vega IV, in the survival of Earth, then.

But, still, it doesn't matter. Whether your suicide convinces them or not, you'll never know. You won't care.

I shivered. It was cold in the darkness.

What will you do now? Death's voice was low and soothing, the voice of a child trying to coax a shy pet into an embrace.

Build my funeral pyre upon this rock, I answered, turning to my companion. Death held out its hand. I started to take it, paused and said, A question.

Yes?

When everything ceases to be, when your work is done . . . what will *you* do?

Death smiled but made no reply. Our fingertips touched, hands clutched, arms entwined. I was drawn forward and pressed against a bosom softer, more yielding, than a bed of the finest powdery dust. Flames licked up through the void, cold, cold, terribly cold fire engulfing the phoenix. I started to cry out, I'M AFRAID. I didn't live long enough.

I sucked in air. It was painful. It surprised me.

Above me, a single mask, serene and sexless. Its golden eyes regarded me intently. I had trouble returning the gaze. My own eyes kept wandering to the light fixture on the ceiling. It seemed wrong. Different. Different ceiling.

Different room.

After a while, I managed to concentrate on the mask. My tongue felt numb when I spoke. "Which . . . one?"

"I don't understand," said the Fate.

"Which one are . . . you? Clotho? Lachesis? A-Atropos? You're . . . Atropos."

"Who is Atropos?"

"Unchangeable. Severer. Of the thread. Of life. The one who stood . . ." My hand fluttered weakly, stiffly, the joints making known their resentment. "Back there. In the back."

"Yes." The Fate nodded. "That was me."

"I . . ." A sob bubbled in the back of my throat, tears filled my eyes. "You can't do . . . I'm supposed to be *dead*, I had to die. You can't bring me back. I had to die. Have to be dead. My only hope of making you believe."

"You were dead," Atropos said mildly. "Dolgener and Lette, Clotho and Lachesis, if you prefer, are fairly representative TIN people. They don't have an especially clear idea of VIN methods, capabilities. But when they discovered that you really had killed yourself, they believed."

"They believed. . . ."

The Unchangeable lifted a shoulder in a half-shrug. "Not completely, of course. Enough. Various ships are en route to Vega now, including a Fleet dreadnaught which

is due to phase in there in six days, standard. It will take another two months for reports to get back to Earth. *If* there's anything to report. Dolgener and Lette are anxious to find out."

"But they believed me."

"They think you *may* have told them the truth, before you died. They'll be waiting for those reports." A needle slid into the hollow of my arm. It stung. "If it turns out that your *deus ex machina* armada has indeed passed through the Vegan system and so forth"—a sardonic note crept into Atropos' voice; I didn't like it—"Network Central will then take the necessary steps, prepare Earth's defenses. And so forth."

"It has to be done now," I said, weakly vehement. "The ships could start showing up at any moment. Today. They could be on their way here now."

"Or heading the other way. It doesn't matter. Don't excite yourself." Another injection. "You're in bad shape."

"But you can't take the chance!"

"You took one."

I started to protest further, but something else, something important, occurred to me. "You . . . you brought me back."

"Obviously."

"How? Why?"

"The usual way."

"But *why*? Who are you?"

Atropos gave me yet another injection. "Go to sleep."

"Who are you?" I raised a hand, thinking of snatching off Atropos' mask. Rather: I tried to raise a hand. There was a numbness stealing through my body, cool, healing currents swirling about inside my skull. My eyelids drooped. I couldn't keep them up. My voice sounded dreamy and faraway. "You don't . . . believe me." Going, going. . . .

There was sunlight coming through the window when I opened my eyes. The strange but pleasant scent of Terran flowers was in my nostrils. The ceiling changed color, darkening from stark white to a friendly pastel green, the color flowing down the walls. The room said, "Good day. Have you slept well?"

I didn't respond. I lay blinking, turning my head from side to side as much as I could, trying to determine where I might be. In a bedroom, obviously, with one wide window opening onto a terrace. Over the terrace's stone railing, I could see the ghostly purple teeth of a distant mountain range. I wanted to sit up in bed and get a better view. My body twitched but did not obey. There was a warm tingly sensation which I recalled having experienced once before, in a regeneration clinic on Vega IV.

"Where am I?" I asked the room. "What date?"

The room said nothing. A door swung inward from the wall opposite the foot of my bed, and a slim

gray-haired man entered. He came over to me and gave me a warm smile.

"Good day." He had a blandly sincere voice. "Believe it or not, we're actually going to get to look at each other on an eye-to-eye level one of these days. You're healing nicely."

"How long since. . . ."

"The table? Two weeks, three days."

"So there's no word about Vega yet."

The man laughed. "No, we're all fearfully awaiting the speedy return of the dreadnaught *Knox*. Bearing dire tidings of the total destruction of the colony."

"Atropos," I said. "You're Atropos."

He raised a shoulder; that half-shrug again. "And you're the phoenix who wanted to know why I brought you back. I'm very sorry about that. Not about bringing you back, of course. For letting you end up on the table. We tried to prevent it, but Home-Fleet was howling for better explanations, and Network Central always listens to Home-Fleet first. Whoever planned that deep-ranger business is insane. Owing to the nature of my affiliation with TIN, I had to stand by and watch as you were taken apart."

"Who are you, Atropos?"

"An officer of the Terran Intelligence Network, of course. And—" he grinned broadly; I could no

longer think of this man as Atropos, the Unchangeable, not without his mask and robes and silence “—an agent of the Vegan Intelligence Network. How else would I have known what to do in order to bring you back?”

I opened my mouth to speak, but there was nothing I could think of to say except, *I don't understand*. The question must have been an obvious one.

“We have to keep TIN in line, after all. Which means getting as many of our people into positions of power in both TIN and Network Central. We've done a pretty good job, too. The phoenix thing, for instance. TIN doesn't understand it, doesn't believe in it officially. Which is why trainees aren't taught the fine art of dying.” Another laugh. “More of our handiwork. TIN is hamstrung every time it turns about. Perhaps now you can understand why TIN interrogators are such vicious paranoiacs.”

“Why?”

The man blinked. “What do you mean?”

“Why are we—are you doing this?”

He frowned and leaned slightly forward at the waist. “I think it's time, well past time, that you explained this peculiar mission of yours. Why did they send you to Earth?”

“The armada.”

“The what?” There was a faint spray of spittle. “Are you joking?”

PASSPORT FOR A PHOENIX



“What’s going on here?” I felt sick in the pit of my stomach. “What are *you* doing on Earth? Working against the separatists, undermining TIN, what’re you trying to *accomplish*?” His cheeks started to mottle, my voice started going up the scale. “Just what the hell kind of mess did I walk into? Whose side are you on? How God-damned many sides *are* there?” I was screaming now. I couldn’t rise from the bed, I couldn’t move any part of my body below the neck, but I was driving him away from the bed, toward the door, with my shrieks. “What *difference* does any of it make? Why aren’t you getting ready to fight *REAL* enemies?” The door slammed behind him. The ceiling and walls dappled and became a somber blue.

Oh God. Oh God. Calling upon an ancient force reputed to have been as terrible and implacable as the invasion armada. Oh Yahweh, Zeus, Wodin. Drawing upon my life-long fascination with the ancient mythologies for Furies, harpies, basilisk, kraken. Fall upon the phoenix, tear it, savage it, kill it and grind its flesh to meal, its bones to powder, and keep these far from the fire. Revoke my pass into the land of the living. Take me away from this place of pain.

★ ★ ★

Later, lying in bed under a warm yellow ceiling, looking out the win-

dow at the distant mountains, my fury spent, I consoled myself with the knowledge that the report on Vega IV, when it came, would have much the same effect on these Terran intrigues as the sudden appearance of the armada had had on Vegan domestic problems. Six weeks to wait out, then, for surely the first vessels to reach the devastated colony were already coming back.

Six weeks.

During which, of course, the VIN faction operating within the walls of TIN could decide to rid itself of me, or TIN, Home-Fleet, one or another section of Terran Network Central, could learn that I was alive again and root me out, or the separatists on Earth could take an interest in me.

Or, no more or less likely a possibility: the berserkers from nowhere could come hurtling through the solar system, brushing aside the unready Fleet like birds in a hurricane, reducing another world to ashes, underscoring again, for some chance observer other than myself, the essential meagreness of all human endeavor.

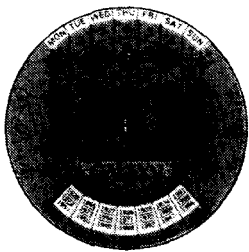
Deus ex machina. The god popping out of his box in an ancient drama to do as he pleased with the human characters on stage. Anything could happen in six weeks.

If worse came to worst, I knew, I had a place in mind where I could sit on a nice rock and talk things over with an old friend. ★

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A Step Farther Out

Jerry Pournelle, PhD

THAT BEAUTIFUL GOONEY BIRD

ONE OF MY FIRST assignments in the space business was to work on the Boeing proposal for DynaSoar—a reusable aerospace plane that could go to orbit and return. DynaSoar and the other spaceplanes never got funded, and instead Congress separated military from civilian space systems, put space with NASA, and opted for disintegrating totem poles that returned about 5% of the structural weight launched.

The totem poles worked. Magnificently. They were admirable for space *exploration*; but it was always obvious that they'd never do for space *exploitation*. Now, after 17 years of waiting, I've seen the ship we wanted to build back in the late 50's.

On Friday, 17 September, 1976, we watched the roll-out of the first real

space ship. The *Enterprise* was the star of a show we'd waited for for some considerable time. One chap standing next to me said something to the effect that she was the ugliest thing he'd ever seen; I managed real self-restraint and said only that it depended on your viewpoint. I suppose that aesthetically the Shuttle is a bit ungainly. Her wings are stubby, she's covered over with tiles, and she's built something like a Mack truck. In the same sense you might say that the Army 6-by is ugly; it depends on what you want to do with it.

If the politicians don't kill her before she flies—Fritz Mondale is on record as wanting the Shuttle program cancelled—September 17, also the anniversary of John Glen's first flight, could be an important day in man's history. The *Enterprise* and

her sister ships will make space operations routine and give all of us access to space.

The rollout was a low-key event, and it was significant that only certain people were there. The Goldwaters, Senator and Congressman, of course; Olin Teague, our champion in the House of Representatives; Senator Tunney; a host of NASA, White House, and industry officials; the Star Trek bridge crew (except for William Shatner who was off on location) and Gene Roddenberry; my own party, Larry Niven and myself, Poul and Karen Anderson, and Bjo Trimble; the more dedicated of the science press corps, although far fewer than I'd have expected. Even more significant may have been those *not* there: the Governor of California, nor any representative of the "consumer" or "ecology" movements.

Now true: rollouts are not really such significant events, and since the rise of so-called "economy" advocates the industries and NASA no longer throw the truly elegant roll-out parties that were once traditional. There weren't many science fiction writers simply because NASA didn't invite them: when, a few days before rollout was scheduled I realized none of us had received invitations, I called North American Rockwell's Earl Blount and got things set up for Larry and the Andersons, and suggested Rockwell invite Mrs. Trimble on the theory that anyone who can get

a ship's name changed probably ought to get to watch it roll out; but NASA had thought either (1) science fiction writers wouldn't be interested in seeing what they've been writing about come to pass, or (2) we aren't important enough to be asked. I'm sure, though, that Governor Brown knew about the Shuttle, and it seems significant that not one representative of the "Appropriate Technology" movement of which he is a major spokesman bothered to show up. In fact, given Fritz Mondale's determined opposition to the Shuttle, it's downright frightening.

We're so close. If it survives the political onslaught, the Shuttle will put 65,000 pounds in near-Earth orbit for a cost of between \$10 and \$20 million per mission. The cost spread has to do with accounting: how much of the R&D cost must be charged to each mission? The marginal cost—that is, the out-of-pocket cost—of each mission is just under \$10 million, and with practice that can probably be reduced. At the moment the turn-around time from re-entry to next mission is planned at 160 hours; but a great deal of that is checkout and elaborate tests, and if the ships fly as well as we think they will, it can be cut.

The Shuttle is to the disintegrating totem poles as the DC-3 was to the *Spirit of St. Louis*. The first Shuttle was supposed to have been named *Constitution*, and in fact that

name had already been painted on when, in an election year, the Star Trek fans generated some 100,000 letters and got it changed to *Enterprise*; but a good case can be made that the most appropriate name would have been "Gooney Bird." The old DC-3, the Goon, Methuselah with Wings, instantly turned flying from a stunt to a profitable business; and it's likely the Shuttle will do the same for space.

In fact, there's talk of a "news-people mission" in the early 1980's. I wonder who'll go: those few of us who have, year after year, plugged for space exploration, or the sudden enthusiasts who show up only when there's a big spectacular? Given NASA's past performance, I think I know—they haven't been notable for saving spots in the press stands for science fiction people. You'd think there'd be some gratitude for those who've spent their lives keeping up interest in space and haven't forgotten its importance during the dry years when there are no spectaculars.

I'd like to stake my own claim to a seat. Chances are that at least one of the people who will in future have the responsibility for making up that passenger list is right now a *Galaxy* reader. Keep me in mind, will you?

The Shuttle is the first true space-ship. It wasn't designed to do any particular thing: it merely carries people and equipment to space. The important thing is that it gives space

access to nearly anything and anyone who has business there. It can be used to capture and repair old satellites, take up whole strings of new ones—or build a real space station, something that SKYLAB never was.

Now there's a move on the part of the L-5 Society and other groups to "rescue" the abandoned SKYLAB. It's unlikely to succeed. The first orbital shuttle flights don't happen until just about the deadline for kicking SKYLAB back upstairs, and some tricky work would be involved.

It might not be worth the effort. True, there is some usable equipment aboard SKYLAB, but the first "house in space" was never designed to be reusable. There are no facilities for refilling SKYLAB's oxygen and water tanks. The ship was put together from old Apollo parts after Congress decided not to continue the Apollo follow-on program; indeed, SKYLAB was more an administrator's than an engineer's triumph, in that it was conceived and carried out as a plan to diddle Congress out of funds that wouldn't otherwise have been forthcoming.

("You don't want to *waste* all that equipment, do you? When for a little more we can. . .")

Now very clever design could probably make use of the poor old bird again by sending up tools and space riggers for rebuilding it; but, sad to say, it would probably be

cheaper to build a *true* space station from scratch. Welding tankage valves, repairing the guidance and control system—these had already begun to fail before the SKYLAB four crew left—is hard work in space. It takes a long time, and some of that would have to be done before the tumbling laboratory could be kicked up to a higher orbit.

And having said all that, I wish they'd try. Call it sentiment, or the "Waste not, want not" philosophy of many of us from back in the days when we pirated space research from other programs; but it seems a shame that a vehicle that once supported three men for 84 days can't be used for *something*.

There will come a time when that hardware would be very useful. There's about 170,000 pounds of SKYLAB in orbit up there, and that comes to 2.6 Shuttle flights just to get the equivalent mass upstairs: over \$30 million in flight costs, without mentioning the replacement cost, Earthside, of the gear.

SKYLAB started in a nearly circular orbit some 435 kilometers above the Earth. By the time of the first Shuttle flights it will be down to 200 kilometers or so. The cost of boosting it back up into a stable orbit, say 1000 kilometers, is in the order of .5 kilometers/second velocity change.

If we use a rather dumb chemical rocket for the job, we can accom-

plish the task with about 31,000 pounds of fuel; add another 5,000 pounds of structure for the dumb rocket, and add 2000 pounds of guidance equipment (no point in being subtle about it); we'll still have 26,000 pounds left over from a Shuttle payload, more than enough to store consumables aboard SKYLAB, add welding equipment and other gear, fill her with new instruments and film. . .

Couldn't three astronauts trained for the job refurbish SKYLAB? I'd strongly bet they could for a total mission cost of under \$100 million, and that includes equipment built here on the ground, \$20 million for the Shuttle flight, and crew training costs to boot.

Out of that we'd get an immediately habitable space lab. Not a true space station, true, but one heck of a useful space platform that could house an experimental crew, serve as living quarters for scientists with mission plans calling for extended stay in space, and even as an emergency shelter—not to mention being living quarters for the construction gang when we do decide to build a real space station.

Rescuing the old girl would be a risky mission, and I've made it seem a bit simple here. Actually, the astronauts would have to rendezvous with the tumbling SKYLAB; get something attached that would let them stabilize it; winch over the booster rocket and emergency guidance system; fire

this mess at the right time: and, when the proper altitude was reached, turn SKYLAB in the right direction and fire off another rocket (or relight the one they used for new orbit injection). Once that was done, the work of refurbishing could start.

Ever since I began this column I've had letters asking for an intermediate lesson in orbital mechanics: how do you find out the velocity changes needed to get from Earth to orbit, or from orbit to orbit? How can you tell what mass ratios are needed? How the devil (someone is saying right now) did you get those numbers for SKYLAB rescue?

I haven't done it because it's not really appropriate for this column: my intent in A STEP FARTHER OUT is to stay far-out, not write a textbook on what's known. Every month there's another book published on space and space travel, and, I've said to myself, surely one of those is going to do my job for me; I'll only have to give the reference.

After nearly three years I give up. In all those books there's not one—at least not one that I know of—that conveniently gives the basic math needed to let a calculator-possessing intelligent citizen go through an elementary mission analysis; and that's criminal. The calculations are not that

esoteric. Some of the numbers are messy, but a decent pocket computer will handle messy numbers as easily as simple ones. Thus, I'm about to sneak in some basic space-math.

For those of you who can't stand equations, don't go away; I'll come back to saving the SKYLAB and other space missions before I'm done.

The best measure of mission cost is velocity change, called "delta-vee" and often written Δv . ("Delta" here stands for the expression "a change in.") Delta-v is useful because it doesn't much matter when or how you use it: a ship has so much velocity-change capability, and whether the pilot uses it all at once, or in little bits and spurts, the total remains the same. Of equal importance, missions can be planned around delta-v requirements, and those can be calculated right here on the ground. Thus the two most important calculations in space mission planning are, how much delta-v will the job take, and how much has my ship got? Given those numbers, you're in the right ballpark: add a safety factor and you've got a good handle on mission costs.

We've been through the equations for the ship delta-v, but it's convenient to introduce the subject by going through them again; besides, not all of you have been reading this column from the beginning.

The basic equation in rocketry is:

$$(v_e) \ln \left(\frac{m_0}{m_v} \right) \quad (\text{equation one})$$

where delta-v is the total velocity change, v_e is the velocity of the exhaust gas coming out the back end of the rocket ship (assuming you're directing the gas straight backwards, which you'll try very hard to do), and the next expression is the natural log of the ratio of the mass before you started the mission (m_0) and the mass you have left when you achieve your final velocity (m_v). Most scientific calculators have an "Ln" button.

Now what good does that do you? Quite a lot, actually. It's not hard to find the exhaust velocities of various kinds of ships. First we need another equation.

$$v_e = I_{sp} \times g \quad (\text{equation two})$$

where I_{sp} is specific impulse, a measure of fuel/system efficiency (it is usually measured in pounds of thrust/pound fuel/second, cancelling into "seconds"; but don't confuse I_{sp} with a *time*, because it's not). The g in that equation is the surface gravity of Earth, 980 centimeters/second²; but the equation works anywhere in the universe. I_{sp} will gradually be phased out now that missions get completely free of Earth's gravity field, but it's still a conveniently acquired measure—it can be taken directly from a tethered engine on a test stand right here on Earth.

A STEP FARTHER OUT

I_{sp} for various fuels and other drive systems are given in Table One.

Sometimes it's convenient to transform equation one so that we can find the mass ratio given the required delta-v:

$$\frac{m_0}{m_v} = e^{\left(\frac{\text{delta-v}}{v_e} \right)} = e^{\left(\frac{\text{delta-v}}{(I_{sp})(980)} \right)} \quad (\text{equation three})$$

where the terms are as defined before. To get e to some power on my calculator you punch "Inverse" and "In."

The quantity $e = 2.71828$ is a constant that pops up in many strange places.

With those three equations and some work you can find out nearly everything you need to know about space missions. Obviously the fuel weight you need,

$$m_{\text{fuel}} = m_0 - m_v \quad (\text{equation four})$$

is simple enough to discover. I'll give one more equation just to be complete, but most of you will never need it. The Thrust, (T) of the system depends on the *rate* of mass loss (the faster you burn it, the more the thrust):

$$T = \frac{m_0 - m_v}{t} \times v_e \quad (\text{equation five})$$

and the only new term here is time, t . Note well: in the foot-pound system, thrust is expressed in

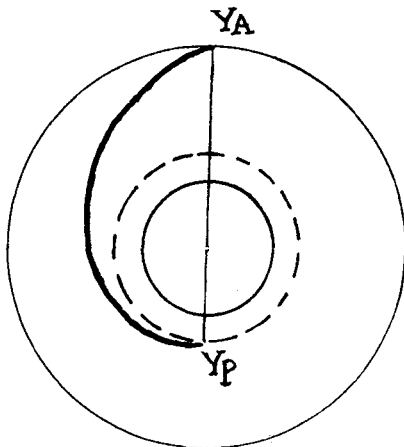


Figure One

“pounds” and sounds like a weight; it isn’t, it’s a force, such that one pound of thrust will support one pound of weight in a one gravity field; don’t get confused. Alternatively, a pound of thrust will accelerate one pound of *mass* at one g if the mass starts in orbit.

Having done with the ship delta-v calculations, we’ll move on to mission requirements. For those still confused, don’t despair: I’ll work out a couple of examples for you after we’ve finished with all the equations.

The basic factor in orbital

mechanics is that you’re orbiting something, and by definition that something has mass; it generates a gravity field.

Thus we have to start with the mass of the central object. From that we can find the acceleration that an object would experience at some distance from our central mass,

$$a = \frac{GM}{r^2} \text{ (equation six)}$$

where a is the acceleration, M is the mass of the central object, r is the distance of object from *center* of the attracting mass, and G is the universal constant of gravitation. Since I grew up with centimeters, grams, and seconds, I’ll use those units here and convert to other units when convenient; and in the cgs system, $G = 6.67 \times 10^{-8}$.

Actually, we almost never bother with GM in orbital equations because they’re always together; instead we define

$$K = GM \text{ (equation seven)}$$

and recall that while G doesn’t change, M and K will: K isn’t the same when calculating flights from Earth to Mars as it is in figuring out Earth orbit missions.

Now the most efficient and simplest orbit is circular, and the velocity of a satellite is

$$v_c = \sqrt{\frac{K}{r}} \text{ (equation eight)}$$

TABLE ONE

SPECIFIC IMPULSES

Fuel or Propulsion System	I_{sp} (Seconds)
Hydrogen peroxide (monopropellant)	175
Hydrogen peroxide and JP-4 (kerosene)	225
Hydrazine and fuming nitric acid	240
Liquid oxygen (LOX) and JP-4, sea level	250
LOX and JP-4 (vacuum)	300
Potassium perchlorate and asphalt (solid)	190
Magnesium metal and oxidant (solid)	250
Military solid fuels	300 +
Best chemical (theoretical)	400
NERVA (nuclear pile & hydrogen) (actual)	650
NERVA (expected by 1978)*	800
NERVA (design limit)	1200
Gaseous Fission System (theoretical)	6000
Boron Fusion (theoretical)	12000+
Ion propulsion	20000
ORION (Bang-Bang)	50000

*The NERVA program was cancelled in 1973.

TABLE TWO

CIRCULAR EARTH ORBIT VELOCITIES

Height above Earth (y_c) (km)	Velocity needed to reach orbit (v_E) (Km/sec)	Orbital Velocity of satellite (v_c) (Km/sec)
0	7.91	7.91
200	8.03	7.79
250	8.06	7.76
400	8.14	7.67
435	8.16	7.65
500	8.19	7.62
1000	8.43	7.35

A STEP FARTHER OUT

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but it's sometimes convenient (especially if you have a calculator with addressable memories) to define r_0 as the radius of our central body (Earth, say) and y_e as the height of our satellites above Earth; then we get

$$v_c = \sqrt{\frac{K}{(r_{00} + y_e)}} \quad (\text{equation nine}).$$

If you plug numbers into those equations (for those who don't have Dole's *Habitable Planets for Man* or some other convenient data source, Earth masses 5.977×10^{27} grams and has a radius of 6.371×10^8 centimeters, giving $K_{\text{earth}} = 3.987 \times 10^{20}$) you'll find that the farther out from Earth you go, the slower your ship is moving: which ought to be obvious, if you think about it. Yet we know that it takes *more* delta-v to get to a high orbit than to a low one.

That one is a bit messier. What we have to find is the "energy velocity," V_E , for the orbit we want; that's also our theoretical delta-v. In the real world where there's air resistance and our ships can't fly exactly on the paths we want, it takes a bit more; that's where we plug in safety factors. The equation for the theoretical delta-v is,

$$v_E = \sqrt{\frac{K}{r_c} \left(1 + \frac{2y_e}{r_{00}}\right)} =$$

$$v_c \sqrt{1 + \frac{2y_e}{r_{00}}} \quad (\text{equation ten})$$

which looks messy but is actually easy enough to calculate. Using my programmable SR-52 I've run off a few numbers for you in Table Two.

So far so good, but how do we find out what it takes to get from one orbit to another? Well, we could take the difference between the velocities we get from running equation ten for the two orbit altitudes; but that gives us something so theoretical it's useless.

Better to think how we can get from one orbit to another. Consider Figure One. We have a low parking orbit, and we want to get to a higher one; say we're got SKYLAB in the lowest one and we want to knock it up much higher.

First we boost like mad at the point marked r_p , which will shove our rocket into an elliptical orbit; if we've chosen our thrust correctly the top of the ellipse, known as apo-apsis or r_A , will just touch the altitude we'd like to have for a new circular orbit. A word about those symbols: r_p stands for "radius of peri-apsis," or the distance at which we're closest to the times use "perigee" and "apogee" furthest distance. Older books sometimes use "perigee" and apogee" for closest and furthest from Earth; perhelion and aphelion for closest and furthest from the Sun; perias- tron and apoastron where astron means star.

The main thing to remember is "a" for "away from."

Now we've kicked our rocket

into an elliptical orbit that gets out to the right distance, but unfortunately as soon as it gets there it tries to fall right back down again; it's going to stay in an elliptical orbit until we do something about it. What we do is give it a kick in the apogee; when we've got to the maximum altitude, we light off our rocket again to increase the velocity to that required for a circular orbit at the given altitude. You can calculate the required velocity from equation nine, stuffing r_A in as r_c ; you can find out what velocity you started with down in the parking orbit, also from equation nine, this time using r_p . We don't have our required delta- v for the mission yet, but we've made a pretty good start on it.

Alas, the next step is the messiest one. It isn't *hard*; just simple algebra, plugging the numbers into the equation; but it looks simply awful. What we need are two velocities, v_p which is the velocity at peri-apsis, and v_A , the velocity at apo-apsis, for a given elliptical orbit.

$$v_p = \sqrt{\frac{K}{r_p} \left(1 + \frac{n-1}{n+1} \right)}$$

(equation eleven)

where v_p is the path velocity of the rocket at periapsis, r_p is the distance from the center of the central mass, and n is the ratio of the two distances,

$$n = \frac{r_A}{r_p} \quad (\text{equation twelve}).$$

$$v_A = v_p \frac{r_p}{r_A} = v_p \times \frac{1}{n}$$

(equation thirteen)

so that wasn't so bad. It should be obvious that $v_p = v_A \times n$ and I won't even bother to number that one.

We are now ready to do the SKYLAB rescue calculations. Remember I started with SKYLAB in an orbit 200 km above Earth. A kilometer, by the way, is 10^5 centimeters.

I start off using equation nine, adding the orbit height to the Earth's radius, dividing that into K , and taking the square root to come out with 7.79 km/second, the speed at which SKYLAB will be traveling when we reach her. We want to kick her up to 1000 km., so I use equation nine to find that we'll eventually be going 7.35 km/sec.

Now I use equation eleven and find V_p for my transfer ellipse is 8.0095 km/second; subtracting out the 7.79 I'm already moving I find I have to kick it .219 km/sec to get the required velocity to put it into elliptical orbit that reaches 1000 km. Using equation thirteen I find that when I get to my 1000 km altitude I'll be moving 7.14 km/sec, while I want to be going 7.35; thus I've got to kick it in the apogee with .21 km/second. My two velocity changes can be added together to

get the total mission delta-v, which is .429 km/sec.

Since nothing ever goes exactly right, I round upward to .5 km/sec as required delta-v and go looking for something to do it with. RP-1 and LOX (high-powered kerosene and liquid oxygen in vacuum) give a specific impulse of 300, which is what I used in my calculations; plug that into equation three, and out comes a mass ratio of 1.18, and .18 times the 170,000 lb mass of SKYLAB gives me 31,000 pounds of fuel needed for the rescue mission. I should now do some refinements, adding the 5,000 pounds of structure and 2,000 pounds of guidance to the 170,000 lbs of SKYLAB; decide whether I really want to take up a liquid rocket with the pumps and liquified oxygen and attendant problems, or drop my I_{sp} down to maybe 250 and use a solid. It doesn't matter, because I can still see I can accomplish my SKYLAB rescue with one Shuttle payload, and I'm not trying for more accurate results.

Obviously these equations will work for deep-space missions as well as Earth orbit. To use them for, say, Earth to Mars, you do exactly what we did here: assume Earth and Mars are in circular orbits around the Sun; plug in the solar mass (1.991×10^{33} grams) to calculate K; get your Earth and Mars distances in centimeters; and go. However, you have one advantage if you begin in Earth orbit: you can sub-

tract out the ship's orbital velocity relative to Earth from the required injection delta-v. Remember that you're calculating everything relative to the Sun except for that: when you find the initial velocity of your satellite it's the *Earth's* orbital velocity (29.7 km/second) that you start with (*plus* the ship's velocity around Earth) and Mars's orbital velocity that you've got to end up with. Mars will help you catch up if all you want to do is get into Mars orbit; I'll leave that for you to calculate.

One more equation and we're done. We need to find out how long the mission takes. That's not too important for near-Earth operations, but for Earth-Mars or Earth-Ceres runs it can be critical.

$$T = 2\pi \sqrt{\frac{a^3}{K}} \quad (\text{equation fourteen})$$

where T is the period of our elliptical (or circular, for that matter) orbit, and a is the *semi-major axis* of the ellipse. All that means is the distance from the center of the ellipse to the point farthest away from it, which you find by

$$a = \frac{r_p + r_A}{2} \quad (\text{equation fifteen}).$$

In the units we're working with the time will come out in seconds; divide by 2 to get the mission flight time since we're only flying half the ellipse.

Incidentally, what we're calculating here are the famous *Hohmann Transfer Orbits* mentioned so prominently in Willy Ley's books on rocketry and space travel, and the equations I've given you are the very ones that Hohmann used some fifty years ago. You can't fly a Hohmann ellipse just any time you want to; you've got to wait until the geometry's right. Specifically, you have to leave at a time such that when you arrive, your target will be exactly opposite the point you started from.

Hohmann orbits are the minimum delta-v flight paths; there are other ways to get from one planet to another if you're in a hurry. They cost more fuel (delta-v requirements go up) and their energy requirements are hairier to work with. I'd give you the equations except that I know Jim Baen is already gnashing his teeth, the printer is saying potent words of evil magic directed at this yo-yo who makes him set all this in type (and sir, I do appreciate the work!), and at least one of my readers has sworn to commit suicide if I give one more equation.

And yet. Having made the customary apology for working my readers a bit, I wonder if I should? Doggone it, none of this is all that hard, and we do live in an age of space travel; surely it's worthwhile to know the bare minimum about space operations?

Must everything be left to experts? Surely science fiction readers

can stand some intermediate math?

Anyway, I've given you the basic tools, and pocket computers that can handle logs and exponential notation cost around \$40; with this introduction those interested can go to more advanced works. The trouble is that most books insist on using vector notation and calculus, and while I agree those tools make it all simpler if you know them, you'd think somebody would let out the secret that ordinary algebra will do the job close enough. Have fun.

Unfortunately I've run out of space and we still haven't rescued SKYLAB. Should we or shouldn't we? I just don't know. The numbers say we can do it at reasonable costs—about one Shuttle mission, plus the ground engineering, crew training, and some hardware to carry up. The only really complex part of the mission is stabilizing the SKYLAB to begin with: it will be tumbling, and you can't very well dock with a tumbling object.

There's where man-in-space gets valuable. I see no real reason why it can't be done this way.

Rendezvous with SKYLAB and take station not too far away. An astronaut with a self-contained EVA suit uses a reaction pistol to get over to the SKYLAB and grabs hold. It's easy to calculate the centrifugal forces he'll experience (no Jim, I won't do it to you; let them look in a high school physics book) and they're not excessive. If he carries a line and a winch he could

haul a package containing a small rocket and some computer equipment over, bolt that onto the tumbling spacecraft, and let fly; it wouldn't take a lot of reaction force to stabilize the ship.

Once she's stable, winch over the booster package and attach; there's a docking port already.

Could we do it? Of course. Will we? Probably not. It's a dangerous mission. But surely we've no shortage of courage among the astronaut corps? No. For that matter, I'd wager reasonable sums I could get 20 qualified volunteers from among *Galaxy* readers who'd do it for room and board and the chance to get into space. The question is, do the politicians who control the

purse strings have the courage to try it? Or the administrators who control the Shuttle missions have the courage to ask? And I fear I know the answer to that already.

It's a pity. It would make a darned good science fiction story, and one that could so very easily come true: but those things don't happen in the real world. Star Trek fans managed to rename the *Enterprise*, but all that took was a bucket of paint. Saving SKYLAB is another beast of a different hue.

Oh well. At least I've seen the *Enterprise* roll out, and I don't think there was a dry eye in Palmdale that marvelous September morning. Stubby wings or not—she's *beautiful*. ★

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	Average 12 months	Single Issue
A. Total No. Copies Printed (Net Press Run)	93,882	107,716
B. Paid Circulation		
1. Sales through dealers and carriers, street vendors and counter sales	26,668	29,200
2. Mail Subscriptions	26,163	34,000
C. Total Paid Circulation (Sum of 10B1 and 10B2)	52,831	63,200
D. Free distribution by mail, carrier or other means, samples, complimentary, and other free copies	1,049	716
E. Total Distribution (Sum of C and D)	53,880	63,916
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11. I certify that the statements made by me above are correct and complete.

(Signed) LAWRENCE C. MURPHY
Circulation Manager

WHO ARE YOU?

After 10, these many years of reading GALAXY, you must know by now who we are. The only thing we, however, know about you is that you read science fiction. But now we need to know more about you to continue to bring you the type of fiction—and, incidentally, advertisements—that will interest you. Please fill in the following in as much detail as you can; your time will be well spent and most appreciated.

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5. **Income:** Under \$5000 ____ \$5-10,000 ____ \$10-15,000 ____

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Thank you for taking the time to respond to our questionnaire. Please
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235 East 45 Street
New York, NY 10017



Many cents suffer an
entirely different but not like Windy!

Night Runners

by Jan Haffley

SHE SEEMED SUSPENDED in a sea of sound, calliope music and trumpeting barkers, human shrieking and mechanical screeching. Ahead peopled buckets twisted and tumbled about gigantic steel supports. A thrilltaxi dashed from the whirlpool, jousting with space.

"Ev-ry-bod-dy wins."

A fat man sat in a trailer cradling a microphone in his hands, his gold-painted fingertips glistening in the sunlight.

"Play 'til ya win."

Air rifles pointed toward targets and treasures displayed behind him.

"Try your luck?"

Windy backed away, away from her mother's trophy case where metals and plaques symbolic of the greatest prizes a scientist could hope to win shared eminence with the loving cups of a master bridge player. She turned and ran.

Ghosts of light danced in a suggestion screen. Serpents of the Medusa test frolicked in air. A rocket soared upward. She tripped over a power cable, the umbilical of a ferris wheel, and fell sprawling.

From where she lay, a path, beads of wet dust, drew her eyes to a stained paper cup covered with ants. A long shadow drifted over it.

"Are you all right?"

Blushing she struggled to her feet and held out her hands, examining them. A white handkerchief began sponging at the dirt and blood. She looked up at the young man before her and frowned. "You're one of

Mother's students, aren't you?"

"I was. Well, actually I still am, in a way. I finished my dissertation in May, but she's letting me stay on to complete some experiments before I move on to Cal Tech." He examined the scratches. "We need soap and water."

"Forget it." She pulled free. Blowing on her palms as if to cool the sting, she walked away.

It took him two long strides to catch up with her. "You shouldn't have come here alone," he said as he stuffed his handkerchief into his pocket.

"Why?"

"Over there." He thumbed toward a man bobbing a toothpick on his lips. He was leaning against a pitch-penny booth and his lazy eyes were fixed on her. "He's been following you."

"How do you know?" She stopped to confront him. "Have you been following me too?"

"Yes," he admitted with a shrug. "I thought I recognized you, but you've changed a lot since you stopped coming to the lab. How long has it been?"

"A couple of years, I suppose. Say, did my mother put you up to this?"

"No, I just happen to like carnivals, that's all. Want to take a ride through the egomaze?"

She shook her head. "Do you suppose Mother has hired him to follow me?"

"I doubt it. He looks like he's

out for a pickup and has you spotted. You've grown into quite an attractive young woman, you know."

"Sure." Looking past him she watched an old man at a refreshment stand bathe his index finger in the acetate wash beside a computer-register.

"Anyway, why would your mother want you tailed?"

"Let's just say that she doesn't approve of my being here either. I'm thirsty. I could use a coke."

"My treat," he said grinning, pleased with himself that he had enough credit to share with her. Most guys ate up their rations and complained of being starved by the government, but he would never interrupt an experiment just to eat.

Windy gazed at his receding back for a moment, then stepped in front of a trio of boys dressed in band uniforms. She led the small parade down the midway, executing a column right at a cabless semi, halting at the computer terminal.

Hesitating, she studied the scratches on her hands. A moment later she turned her head to one side, away from the vinegary odor, and put her index finger in the swirling wash. A flip of her hand removed the excess solution. She placed her finger in the groove on the faceplate and waited while the carnivorous register took its microscopic bite of half-dead skin. With a

wink and a nod the barker signaled that her credit had been approved.

Without looking back she stepped up into the trailer, ducking behind a burlap curtain. There were only a few spectators. She followed their clockwise procession, by-passing the six-legged goat.

Ape Woman was taking a siesta in her cave, her silky hair combed into waves about her bikini. Windy chuckled as she recalled a hairless chimpanzee she had seen once. He had resembled a man about as much as this woman, with her aquiline nose and full lips, did an ape.

The sightseers were watching Rubber Man's self-sculptures. Windy circled around them.

She called into the next stall.

A grotesque face turned toward her, its button eyes brightening. "Haw," Elephant Woman said.

"How are you?"

"Fon," she trumpeted. "Maw back's moosh bottor."

"I'm glad." Hesitating, Windy glanced at the pretzel shape of Rubber Man, then asked, "Would it offend you if I told you what you remind me of?"

Elephant Woman frowned, producing thick folds in her brow, then nodded her head, nose flapping.

"It's a strange association really," Windy said bracing her arms on the railing that kept the freaks out of reach. She leaned into the jungle. "But you remind me of Capuchin. Capuchin was a cocker spaniel."

The frown disappeared from Elephant Woman's face and Windy was encouraged to go on, "He had huge paws, small pointed ears, and the most beautiful, sad brown eyes, and he was sort of accident prone. You see, Capuchin had a prehensile tail, the kind some New World monkeys have.

"I'll never forget the time we were leaving for the Duplicate Club. It was raining, so Mother had called a cab. To appreciate this you have to know my mother. She looks exactly like I do, only older, more sophisticated." Windy straightened, imitating her mother's haughty demeanor.

"Well, we were on our way to the cab when I decided I needed a raincoat. The umbrella just wasn't large enough for both of us. I ran back to the house, swung the door open, and Capuchin dashed out between my legs. I don't know how I managed to escape, but my mother wasn't as lucky. Capuchin charged past her, his tail catching her ankle as he went by. It was a classic prat-fall, right into a mud puddle. The look on her face," Windy giggled, "I'll never forget it."

Elephant Woman laughed as much at Windy as at her story. It sounded like a pig oinking.

"You had to see it to appreciate it."

"I'll bit."

Windy turned toward the source of the new voice. Seal Man had stretched his neck around the parti-

tion that separated his rocky ledge from the rubber tree jungle. "*Buòn giorno*, Mr. Anatoli," Windy said, losing her smile.

"*Buòn giorno*. I can jest sees zat dog."

"He was my best friend." She moved on quickly. It made her ill to look at him, and she did not want him to see her face.

"Turtle Man," she exclaimed as she peered down into the last compartment.

"Windy!" Turtle Man had to strain his neck to look up at her while his grassy platform elevated. "When I heard your voice, it was like a charivari for my ears."

"What's a charivari?"

"A silly song. Comes from Greek word for headache."

Windy stuck out her lower lip pretending to pout. The hoist stopped grinding when Windy and Turtle Man were face to face.

"Where have you been, Windy? I've been expecting you all week."

"Working. I'm out of school now and doing my stint in the Youth Services Corps."

"Aha, and they rob you of the best years of your life."

"That's a matter of opinion. I happen to enjoy doing something useful. Say, what happened to Backwards Man? At first I thought you were gone when I saw Ape Woman in your cage, but it's Backwards Man I'm missing."

"He joined a circus. Better pay, you know. I talked Minsky into this

cove so that I could be nearer the door and fresh air." He turned up his nose and sniffed.

Windy nodded toward Seal Man. "How is he doing?"

Turtle Man arched his back in a shrug. "The adjustments are many, especially for a man who has spent so many years in institutions. He's coming around."

Windy turned away, away from that strong masculine face. "It's not fair."

"What's not fair?"

"Man-made freaks. He doesn't belong here."

"Neither do I." Windy looked back into his blue eyes. "Freaks are mistakes, nature's or man's. It doesn't make any difference. His mother took thalidomide. Mine carried bad genes and knew that she did. Yet she took the chance anyway."

He paused to study her eyes. "Windy, you have the wrong perspective. Look at it this way. There are no thalidomide freaks being born now. Soon there will be no genetic nor congenital freaks either because of science. Why, over ninety percent of the defective fetuses are being aborted now. I ask you what is all this going to do to the carnival freak business?"

"I'll tell you what science is doing to the freak business," she said in a harsh whisper. "Science is creating new freaks, and my mother is the trend setter."

"Windy, you . . ."

"I'll show you one of those freaks right now." She pounded her chest with her index finger. "I don't have a father. My mother is as virgin as the day she was born. She created me on a petri plate and had the embryo implanted in one of her lab technicians."

"Windy," he said softly, refusing to be caught up in her emotions. "Windy, we are all freaks. Look at those marks over there. See the man killing himself with his cigarettes. Those are tobacco cigarettes. Look at the blonde. That's a wig. What's she hiding? Look at them, Windy. Look at them looking at us. They are all freaks."

The corner of Windy's mouth twitched a moment before coming to rest in a feeble smile. "Is there any room in there for me?"

"That's my girl."

Windy stepped back to let the on-lookers gape at Turtle Man. The blonde glanced at her, and she blushed at the thought of having been overheard. As the group dispersed she approached the stall again.

"Freaks. They're all freaks," Turtle Man scowled.

"What happened?"

"Nothing. Nothing, just tongues without tact. Can you come by after the show closes. I picked up some interesting tapes in Guatemala. They've got an unusual syncopation. We could make it a party like last year." He nodded toward the other compartments.

"I can't. I'm supposed to play in a bridge tournament tonight. Besides dancing with Rubber Man is like dancing with a suggestion screen. The instant you see it, it's gone."

Turtle Man laughed. "I see your point. Tomorrow then? I could have Minsky set up a recorder in here."

"Fridays are reserved for the psychologists. Uh, when are you leaving?"

"Midnight tomorrow. Got to get set up for the State Fair Saturday."

"I can't promise anything." She bit at her lip and then turned toward the exit.

"Windy." She stopped at his call, but did not look back. "Thanks for coming. It's people like you who make this job bearable."

* * *

She stepped into the confusion of sunlight and noise and felt a surge of panic. She closed her eyes to ward off the feeling as much as the light.

"What took you so long? The ice has melted."

Windy squinted up at the man's narrow features. "How did you know where I was?"

He pointed with a paper cup toward a man clenching a toothpick between his teeth. He was braced against a barker's podium. "I asked him."

"Who is he?"

"He didn't say." He offered her the cup.

She took a sip of the hot syrup, then gulped the rest. Crushing the cup, she tossed it aside and walked over to her shadow.

His skin was pitted with acne, his dingy shirt stained with sweat. "Why are you following me?"

His hand reached for the toothpick as his thin lips puckered into a grin. His prying eyes worked their way down from her face. "Shake that creep and I'll take you for a spin on my rentabike."

"You perverted freak."

The man jolted upright, his features twisting with rage. She spat into his face.

She struggled with the grip on her arm as she was steered into a crowd mulling about an arcade.

The young scientist swung her around so that she faced him. "You're a fool, Windy Rode."

"Who asked you," she retorted as she freed her arm. She walked away.

He matched her stride. "He would have hit you."

"What if he had? What time is it?"

He glanced at his watch. "Six-thirty."

"Damn." She increased her pace.

"Where are you going?"

She stopped. "I don't know."

"Well, I wish you would make up my mind."

"Make up your own mind." She

sauntered over to a startrek tent.

He argued with himself for a few moments before following. She was sitting at a CRT console drying her finger on her jeans. He sat down on the rickety stool at the next station.

"Mr., Mr., I'm sorry I don't recall your name," she said to him as she stared at the blank screen.

"Dr. Randolph D. Bucknell, Randy for short."

"Dr. Bucknell, what . . ."

"Randy."

"Randy then, what did my mother do with Capuchin?"

"Capuchin?"

"That dog with the prehensile tail."

"Uh, anatomical studies, as I recall. Yes, found an unusual localization of ganglion in the lumbar spine. We wondered if it was a primitive brain that controlled the tail, but we couldn't test the hypothesis. He was a fluke. We haven't been able to recreate the genetic pattern, though I think your mother has a student working on it."

The operator came over to connect the CRT to a computer line, but Windy continued to stare at the unlit screen.

"I'm sorry. Was he a pet?"

"I wouldn't expect anything else from her."

"Windy, your mother is a great woman. She's attractive and intelligent and talented. Do you realize how lucky you are to be endowed with her genes?"

"Sure, a xeroxed copy on disposable paper."

"That's not fair. You'd better play before the machine shuts off."

She punched the key for a control report and inventoried her energy and photon torpedo supplies. Then she made a long range scan of the universe.

"I wish I could open your eyes, Windy. She didn't sacrifice your pet for nothing. If your mother seems rather unfeeling at times, it's only because she has to be in this business. Windy, I've seen her brought to tears because of the freakish results of some of our experiments. I've seen her tremble as she held a grotesque mass of living protoplasm in her hands. I know the feeling. You want to hide your face in shame for what you've done."

"Shame?" The eight-by-eight grid twinkled with two red star bases and a concentration of green Klingons in the lower left quadrant. "It's not shame that she feels. It's anger, anger at failure, and she does hate failure with all her gifted soul."

"You're wrong."

"No, I'm not. I know because I am her."

"No, you're not. You're not telepathic, or are you?"

"No, but I do know how her mind works. Believe me I do." She activated her cloaking devices, set course in matrix code, and engaged warp drive. "Randy, how many other parthenogenic children have

been created in the last seventeen years?"

"Let's see, you were the first. Singh's daughter was next, I think. Yes, three, four, Briedlove had a son about five years ago. His was the first from a skin cell. There's been several since then. About a dozen, I'd say. Why?"

"Does everybody know about them?" A short-range scan showed that she was surrounded by enemy starships.

"It's never been a secret. There was quite a lot of publicity surrounding your birth. It impressed me and I was only six or seven at the time. You didn't answer my question. Why? What difference does it make if there are others?"

Estimating the angles to all three she dropped her shields and fired, getting two with photon torpedoes, crippling the other with phasers, and taking a direct hit in her hanger decks. "Ha, got all three. Do you remember last winter when my mother had that surgery for her ulcers?"

"Yes, her condition was critical."

She studied the damage control report. "It took half my stomach to patch her up."

"What?"

She had to return to star base for repairs. "I did not give consent. I went to the hospital to visit her and the next morning I woke up with tubes running through my nose."

"You mean that, that . . ."

"They said I couldn't give consent because I was a minor. But that was just an excuse." Activating the energy shields, she set a circuitous route, avoiding the sectors controlled by Klingons.

"You're not saying that she, that she would . . . Why don't you get out, leave her?"

"It's not easy to run away these days." Without turning she waved her right hand in front of his face. "The minute that finger goes down on a credit terminal she will know where I am. How far can I run before I starve to death?"

"Maybe someone could share credit with you."

"How would you like to live on half rations for who knows how long?" The damage control update indicated that repairs were in progress. She maintained position.

"I could," he mumbled, blushing.

"The carnies would for a price."

"What price?"

"Never mind." The Enterprise exploded, star base and all, in a giant supernova. "Blast it!"

"It's rigged. If you want an honest game use the school's computer." She stood up, but he remained seated. "Why don't you try a lawyer?"

"I did, as soon as I got out of that hospital. Would you believe that he said I don't exist. Our chemprints are identical. There is no legal way to prove that I do either without Mother's cooperation.

We'd have to appear together before a judge so that he could count to two. Those damned computers can't count to two, but they sure can play favorites and give Winona Stokes Rode double rations."

"Surely your mother would cooperate with a judge."

"You don't believe me." She looked down at her hands and began rubbing dirt away from the scratches. "I don't think that lawyer did either. What's the word of an immature girl with a paranoid complex compared to that of a world-famous scientist?" She turned around. "Let's get out of here."

"There ought to be a way to alter your chemistry," he said as they entered the midway.

"I've tried finger paints, drugs. I've even exposed my hands to every kind of radioactive substance I could find in Dr. Maslen's lab, but those damned registers still read Winona Stokes Rode in the singular."

They moved between the horror show and the fun house and their blaring noises.

"Windy, I know your mother," he shouted. "A simple tissue transplant is one thing, but I can't believe that she would go so far as to take your life to save hers, nor can I believe that any doctor would actually do it."

"Don't underestimate the power and influence of my mother. When the time comes the question will be who is more valuable. There will be

no precedents to guide them. They will have to decide whether I am an organ replacement bank or a human being. And I can't seem to establish that very fact. By damn, I don't want some doctor sitting in awe of my mother making that decision."

He followed her eyes toward the lifeless suggestion screen, a rocket ride darting about it. "Listen, Windy, I have an idea . . ."

"What time is it?"

"Past seven. We could . . ."

"Dammit, I'm late."

"Late for what?"

"A bridge tournament."

"With your mother?"

"Yes."

"You must be good. Listen . . ."

"Not that good. What's wrong with it?" she asked, still looking at the screen.

"Probably blew a fuse. Listen, will you. You don't have to go back. I've got a rentacar. I could . . ."

"I'll bet it's done with lasers." She started jogging toward the hollow screen.

Exasperated, he held back, watching her as she stopped in front of the black hole, looking like a marionette forgotten on stage after the show was over. She moved so slowly that he was unaware of her motion until she was inside. "Don't," he gasped as he broke into a run. "Stop! Windy, stop!"

He slid to a halt at the opening and reached for a wrist. She stumbled as she came out, nearly falling.

"Get your hands off me."
"You could have been killed."
"Go to Hell."

His eyes and mouth pinched with anger he tightened his grip and headed for the exit. "Come on. I'm taking you home."

"Let go of me," she said, hissing the words out between her teeth. "Let go or I'll scream. I'll cry rape. I warn you."

He slapped her arm down and spun around to face her. "I don't give one damn about what you do, young lady, but I do care about your mother, and I am going to hear her side of this story."

"Go right ahead, but leave me out of it. I'm not going back."

"And just what do you intend to do?"

"Well, I can't stay with the carnival, can I? You'll go tattle to my mother."

"Why the carnival?"

"Because they'll feed me."

"Isn't there somewhere else you could go?"

"Jail."

"I mean a friend, a relative, a church, the Red Cross."

"I've got a friend right here. He'll set me up."

"I don't like it."

"Dr. Bucknell, I'm never going to go back."

He took a deep breath and let it out slowly. "Okay, I won't tell, at least until I can figure this out. That is, as long as I know where to find you."

"Is that a promise?"

"Yes."

"Then drive me to Des Moines tonight."

"What?"

"Mother could be calling the cops right now, this minute. The first place they are going to look is this carnival. But I could link up with it in Des Moines, at the State Fair, after it's been searched."

"I don't know," he hesitated, wondering how far he could trust her.

"Dr. Bucknell, go back and take a good look at that suggestion screen. Those lasers are shielded with diffusion glass."

* * *

He paced in front of the orgy tent, not wanting to go in, not wanting to see her in there. He paced and he watched the lights blink out one by one as the carnival closed down for a brief night's rest. The sounds were dying, the static fading, unmasking the giggles and laughter emanating from that tent.

A man stepped through the tin-kerbell curtain. His grin disappeared as he met Bucknell's gaze. He finished buckling his belt, spat on the cement, and walked away.

An echo from the stadium announced the beginning of the night runner races.

Bucknell made his way around to the back of the tent and a flap open-

ing he had noticed earlier. There he waited in the shadows of a flare-wired fence.

Several minutes later people, male and female, dressed in swatches of fur and body paint began to filter through the slit in the tent. Too tall, too short, too dark, too fat, too old, too masculine. He followed a pair wearing rabbit ear headaddresses.

One of the girls made a gesture with her hand as she talked. The scratches on her palm were red and swollen.

Three paces later he was beside her, his hand biting into her shoulder. "My God, Windy. How could you?"

She winced and twisted away. The other girl screamed. Bucknell froze. Someone came running.

"It's all right," Windy said, stepping between the striped man and Bucknell. "It's all right. He's a friend of mine. He startled us, that's all."

"Are you sure?" the tiger man growled.

"Yes, it's all right."

"Sucker marks," he hissed in Bucknell's face and turned away.

"Go on," Windy motioned to the other girl. "I'll catch up with you at the freak's tea."

A moment later they were alone. Bucknell let his eyes trace the contours of her costume. It hid everything and nothing, not even the scar under her sternum. Letting his eyes fall he kicked at an inert

NIGHT RUNNERS



shadow on the pavement and said, "So this is the price."

"At least I'm eating." She began working the headdress out of her hair.

"You can eat at home."

"That's right."

"Windy, I had a long talk with your mother," he said, looking up, searching for her eyes in the whiskers and make-up. "She's worried sick about you. She wants . . ."

"How sick?"

"She looks bad. Her eyes are bloodshot. She's extremely tense. I don't think she's been eating or . . ."

"Sounds like she needs another ulcer patch. No, thank you."

"I promised her I'd try to bring you back."

She retreated, saying accusingly, "You finked!"

"No, I didn't. I didn't tell her where you were."

"You told her you knew where I was. That's all she needs."

"I wasn't followed, if that's what you mean. I made sure I wasn't. I checked myself for beepers before I left and I changed cars in Ankeny."

"Dammit, how can I be sure?" she said as she peered into the shadows.

"Take my word for it, will you. I want you to go back of your own free will."

She bit at her lip. Tucking the headdress under her arm she began running her finger around the sore on her palm.

"I believe your mother wants it that way too. She promised me that there would be no more operations without your consent." He took a step toward her, looking at her hand.

"Did you get that in writing?"

"It wasn't necessary. That needs a doctor."

"No doctor."

"It's infected."

"Ginny said she'd lance it tonight, after the tea." She began walking slowly.

He fell in step by her side. "Your mother said that she would find a way to give you a legal identity. She said that she's been meaning to, but she just hasn't had the time. You know how busy she is."

"Yes, and I know that she does break promises."

"If she has, it was probably for a good reason."

"She promised me that she would find Capuchin . . ."

"Capuchin?"

"That dog with a prehensile tail. She promised me that she would find him a good home. Besides, if she really wants me to go back of my own free will, why is she offering that reward for any information leading to my whereabouts?"

"What reward?"

"Don't you read newspapers?" She skipped ahead.

"Come on. I'll show you how freaks have fun."

They skirted a series of tents and trailers and came upon a silent cir-

cle of light. Windy broke through, then stopped. He followed her in.

"What's the matter with everyone? Minsky, start the music. I feel like dancing," she shouted gaily and did a pirouette, waving the bunny ears like a fan. She glided over to a man entwined in a lawn chair. "Come dance with me, Rubber Man."

Shaking his head he raised a bottle to his lips.

She stopped and looked at the woman curled up in the seat next to him. She was stroking the hair on her face as her eyes met Windy's.

"Let's sing then."

"I don't feel like singing tonight," Ape Woman said softly, the words ringing pure like bell chimes.

"What's wrong?" Windy whispered, letting her eyes roam round the circle.

Elephant Woman sat squarely on a high-back chair, her body overflowing the edges, her eyes averted. Minsky kept his back to her as he fiddled with the recorder. A group in costume from the orgy tent began whispering among themselves. Turtle Man and Seal Man were sitting on handcrafted thrones perched on a folding table.

"Come here, Windy," Turtle Man said.

She walked over to him slowly. Bucknell took a few steps toward her.

"Who is he?" Turtle Man asked, nodding toward Bucknell.

"Randy, the man I told you

about, the one who refused to bring me here."

"Then he should take you back."

"No. I'm not going back, not ever."

"Windy. He cleared his throat and glanced at Bucknell. "Windy, you'll never be a pitchman or anything else. Farnsworth is not going to let go. He wants to work you as a hound, a bitch. The next state we play has sixteen as the legal age. White slavery laws won't apply. Windy, the games you're playing now will be for real. Do you understand?"

She clenched her jaw and nodded.

"Go home, Windy."

"No, I can't."

"You must." He raised the stub of one arm. "Windy, you don't belong here."

The recorder blared a deafening Mexican bolero.

A man dressed in street clothes brushed past Bucknell. Another approached Windy from the other side. She whirled and backed into the table. Trapped.

The struggle was brief.

Bucknell stepped in front of them as they started to take her away.

The music stopped.

"I said, who are you?"

"You fink!"

"Get out of our way."

"Are you policemen? Is she under arrest?" Bucknell demanded, holding his ground.

"You fink!" she shouted at him

again, her face pinched with hatred.
"Let go of me."

"I demand to see your credentials." Bucknell addressed himself to the shorter man.

The others were gathering behind Bucknell, blocking their way.

"You dirty, rotten fink!" she raged at Bucknell.

"Can you hold her, Russ?" the shorter man asked his associate.

"I've got her."

He released his grip and searched his inside jacket pocket.

"You damned . . ."

"Windy, I called the police," Turtle man said.

She tried to turn toward him. The man holding her arm stepped around so that she could. "You?"

"I had Minsky do it. Windy, don't fight them. Go home."

"You? The reward. That damned reward. You!"

She spun around, sending her knee into her captor's groin. He gasped and loosened his grip. She broke loose. She scrambled onto the table, giving Turle Man's throne a shove that set it rocking, and jumped down on the other side. She ran.

Bucknell elbowed his way past the policemen, rounded the table, and darted into the shadows, leading the pursuit. His long strides shortened the distance rapidly.

She veered left, disappearing behind a tent. He drew up at the same place, turned, and slipped, his foot skidding across the asphalt on the

rabbit ear headdress.

The policemen caught up with him as he regained his balance. The taller man was still wincing with pain. They filed down the empty canyon between an arcade and a startrek tent.

The midway was dark, the only light coming from street lamps on the fair grounds. There was no one in sight.

"She must be in there," the smaller man said, pointing to the thrillrides. "You take the far end, Russ this end. I'll take the middle. We'll flush her out."

Bucknell jogged down the midway, skipping over power cables. He felt the man panting at his back turn away. At the merry-go-round he cut in behind a register and slowed to a walk, listening.

He moved toward the egomaze, watching the shadows and listening, but hearing only echoes from the stadium.

"Windy," he called in a whisper. "Windy, it's me, Randy. I want to help you. Windy?"

Under the rocket-ride, through the tilt-a-whirl rigging, around the suggestion screen, he moved calling, listening, calling, listening, hoping that he would be the first to find her.

Through the slimy strands of the Medusa test he could see a large building. As he picked his way through the motionless serpents he noticed something moving. One of the policemen was jogging down

the alley toward him, hugging the brick wall.

He stepped over a snake, ducked under a coil, and emerged in the alley just as a figure darted from a side door of the building. She took two steps toward the policeman, pivoted, and ran in the other direction.

"There she is," the man shouted. "Get her."

Bucknell joined the chase, leading the policeman by several meters.

She hesitated a moment at the intersection with the main street of the fair, then turned right. The building shielded her from view. She couldn't have been more than a dozen strides ahead when Bucknell made the corner.

He was running down a sidewalk, animal barns on one side, vending trailers on the other. Windy was nowhere in sight. He cut out into the street and slowed to a trot, looking back over his shoulder. The policemen, both of them, were searching the concession stands and trailers.

Looking over his other shoulder he traced the long line of the theater screen tucked under the grandstands of the huge, domed stadium. A muffled roar burst forth from the seats as one of the night runners took a water jump and fell to its knees, throwing its rider. The animal's enormous IR-sensitive eyes left a rainbow of reds and blacks across half the screen.

NIGHT RUNNERS



He was edging over to that side of the street, nearing the betting registers, when he saw her bobtailed silhouette skirt the last row of seats. He took a deep breath and forced his legs to work harder.

The night runner race ended with a roar of cheers and hisses.

"Next race in ten minutes. Place your bets," the speaker system rumbled with the mechanical voice.

Bucknell was trapped, entangled in the stampede. Pushing his way through he stretched his neck to catch glimpses of her as she moved out of the theater and followed the contour of the stadium.

He lost her just as he broke free. His feet clawed at the track before him, and the cement hit back, slapping hard against the soles of his shoes, jerking and jarring his over-tense body.

He dodged a grounds sweeper, hurdling its multihinged arms. As soon as he cleared it he saw her. She was heading toward a line of hooded night runners. They were filing past a gap in the solid wall and disappearing into the blackness of the stadium's interior.

She fell, struggled to her feet. He pushed his legs harder, gaining ground with each step. She looked back, then staggered forward.

"Windy," he yelled between gasps for breath. "Windy. Stop."

He ran with his eyes glued on that white cotton tail. He ran and yelled—watched her plunge into the line of runners.

One of the animals reared, its legs lashing frantically in its blindness. She went down.

The jockey jerked on the reins and threw his weight to one side in an effort to turn the runner as it danced on its hind legs, but it wasn't enough.

"I won't go back," she said, slurring the words as she fought for consciousness. "I won't go back."

"Relax. Lie still now. We'll take care of you." The faceless voice grew faint. "That's what I'd hoped for, a good sign."

"Is she going to be all right, Doctor?"

The light was dull and bright. They had no faces, just eyes, a thousand eyes.

"I won't go back."

"The doctor said you're going to be fine, Windy. Now do as he says."

Turning her head she saw her mother lying in a cradle of tentacled instruments. "Mother?"

"Relax now. We're going to give you an anesthetic. Just relax," the doctor urged. "That's it. Dr. Rode, are you sure you want to go through with this? I mean with your recent surgical history I can't guarantee . . ."

"I know, Doctor. Get on with it."

"Chiu, put her under, and take the kidney first. The other graphs may have to wait." ★



GALAXY BOOKSHELF

Spider Robinson

Cloned Lives, Pamela Sargent, Fawcett, 336 pp., \$1.50

Time of the Fourth Horseman, Chelsea Quinn Yarbro, Doubleday, 183 pp., \$5.95

Walk to the End of the World, Susy McKee Charnas, Ballantine, 214 pp., \$1.25

The Exile Waiting, Vonda N. McIntyre, Fawcett, 224 pp., \$1.25

Patternmaster, Octavia E. Butler, Doubleday, 186 pp., \$5.95

More Women of Wonder, ed. Pamela Sargent, Vintage, 305 pp., \$1.95

Aurora: Beyond Equality, ed. Vonda McIntyre & Susan Janice Anderson, Fawcett, 222 pp., \$1.25

The Clewiston Test, Kate Wilhelm, Farrar-Strauss-Giroux, 244 pp., \$8.95

Pilgrimage, Zenna Henderson, Avon, 255 pp., \$1.25

The People: No Different Flesh, Zenna Henderson, Avon, 221 pp., 75¢ (!)

The Bloody Sun, Marion Zimmer Bradley, Ace, 191 pp., \$1.25

LET'S JUGGLE around some fulminate of mercury this month, gang. Let's examine women and science fiction.

Hoo boy! Already the extremists of both sides are reflexively fingering their knives. The feminist radicals are convinced I'm going to do a reverse-discrimination "dancing bear" routine ("The amazing thing about a dancing bear is not how well it dances, but that it dances at all."); and the masculinist radicals (the MCP Backlash) are convinced I've sold out my cojones. How about if all of them radicals go off somewhere and shout at each other, while you and me have us a quiet conversation?

We're not talking here about women *as characters* in sf—that's a whole 'nother column. Of course the dominant/submissive relationship that both men and women have

agreed to act out together for the last umpteen centuries has been reflected in the portrayal of women in sf. Despite pioneering work by male writers like Anderson, Sturgeon, Pohl, Herbert, Dickson, and particularly Heinlein (whose women characters have almost invariably been important and respected members of their society, toughminded and competent) and by female writers like Merrill, LeGuin, Moore, Brackett and Norton, strong woman characters have statistically been as rare in sf as anywhere else, on the whole. (I enjoyed the line I heard at a feminist discussion at MidAmeriCon about Lieutenant Uhura: "They combined their token black and their token woman in one character—and then made her a telephone operator!")

But one of the biggest contributing factors to this shortage has been the shocking shortage of good woman *writers* of sf, and that's what we're here to talk about this month.

I can find no evidence that anyone ever failed to sell a good science fiction story because she happened to be a woman. Both Kate Wilhelm and Judith Merrill have said they found no difficulty in selling sf under their own names—even though Judith *did* have to use what we might call noms de plums to sell westerns and mysteries. Yes, I know about C.L. Moore and D.C. Fontana and "Andre Norton" and the host of women who elected to

use ambiguous pen-names—but I know of no one who initially failed to sell under their own name first. Editors want good stories—need them to survive—and will let nothing stop them from buying a good one from *anyone*. Hell, Mary Shelley's *Frankenstein* CREATED the whole damn genre. And yet when I first decided to do this column, it took me well over six months to acquire a column's-worth of books by women.

Clearly, the problem isn't that women can't sell sf. The problem is, not many women are writing the stuff. Or IS that the problem? Could it be that lots of women are writing sf, but their output is inferior?

Ursula K. LeGuin. Kate Wilhelm. I rest my case.

So why aren't women writing sf? Well, I think it's because writing, like any other artistic career, requires that you either live alone or have a *very* understanding spouse—and I must say I've met more mature wives than I have mature husbands. It doesn't help that writing is one of those lifetime careers (like Getting Your Doctorate) where you can put in from one to ten years before you see any solid return, with strong support required for every one of those years along the way. It calls for a first-rate husband, and our culture trains men that sharing the scut-work is unmanly.

But it's getting easier. We're all getting smarter. It may have taken

me six months to assemble this column, but not too long ago it might have been *impossible*. More women are writing—and reading—sf than ever before.

Let's examine their output. This is by no means an exhaustive—or even necessarily a representative—selection of women sf writers. It's just what's come over the transom lately. Five of the eleven books herein considered are first novels—a significant datum—so perhaps we should consider them first.

In *Cloned Lives*, Pamela Sargent has written the first clone novel I've seen that doesn't assume that clones will, by virtue of their biological similarity, become group-individuals indistinguishable from each other. Sargent has realized the obvious: that "genetically identical" does not equal "identical." (Anyone who's ever raised or known twins, triplets, quads or quintos could have told us that.) This notebook I'm scribbling on right now is genetically identical with the hypothetical one on which someone is now inscribing a love note to his dachshund—it's what you *write* on it that counts.

What Sargent wrote on her tabula rasa is an extremely realistic tale of the near future. At about the time that the world scientific community's self-imposed moratorium on genetic experimentation is expiring,

a group of biologists succeed in producing five clones of a man named Paul Swenson (four males, one female). Sargent gives us a character-profile slice out of the life of each of the six, then ties them together in a final section which uncorks a few beautifully planted surprises. Throughout, the writing is fluid, the characterizations vivid and layered, the background world and the events that take place therein utterly plausible.

Perhaps it's that last that's the problem. Like *2001, Cloned Lives* is so realistic, you catch yourself yawning. It doesn't really *go* anywhere, in a plot sense.

This is not necessarily a fault. Edgar Pangborn's books seldom have plots, and *Dhalgren* sold a lot of copies. But plotless writing demands extremely colorful characters, and the five clones in this book are just too damned ordinary to sustain my interest. I *think* that this was done consciously, that the whole point is that Clones Are Just People, and I applaud the point. Defusing prejudice before it begins is a lovely goal, and if more folks read this book, the race's first *real* clones will have a much easier time of it. But you gotta *make* people read your book.

I note that three of the seven chapters were previously published separately. Could it be that *Cloned Lives* didn't start out to be a novel? That feels right—any one of these chapters would have kept me read-

ing, but there just wasn't a novel's worth of conflict.

For me. I like sharp, urgent conflict in my fiction. You might like this one just fine.

On the other hand, Chelsea Quinn Yarbro's first novel, *Time of the Fourth Horseman*, is chock fulla sharp urgent conflict, and I didn't care for it much at all. The more pessimistic and cynical you are, the less you will tend to agree with me. If you're borderline paranoid, you won't agree with me at all.

What we got here is a disaster novel, and here is your basic plot: an idealistic-but-tough woman doctor learns that her doctor-husband (with whom she *thought* she had a deeply intimate and loving relationship) is one of the heads of a vast government-sponsored secret conspiracy to reduce the population crush by quietly replacing a third of all vaccines with placebos. She is unable to dissuade him, and indeed she and the *very small* band of doctors who are upset by this Modest Proposal find themselves discredited and disgraced. Apparently they can't even get the *Washington Post* interested, even when stupendous epidemics of supposedly extinct diseases start ripping the country apart. (Curiously, this decimation of the populace doesn't seem to affect international relations any—or maybe Henry Kissinger is supposed to have

secured gentleman's agreements from all the rest of the world's governments to implement similar programs at the same time.) From there, horror succeeds horror for 183 jading pages—for, as anyone would have guessed, the Great Diseases, roused from their slumber, proceed to mutate into truly unstoppable killers.

Three famous sf writers and an M.D. state on the back cover that they found this premise "chillingly plausible." If you agree, I believe we're in serious trouble.

Because one of the manifestations of the Heisenberg Uncertainty Principle as applied to mankind is that what we all agree to be plausible becomes so, and if we agree that this is a plausible premise, I'm going to go flush my head down the toilet—spare them Evil Politicians 'n' Doctors the bad karma of slaughtering me.

But the premise ain't my only complaint. I couldn't tell the characters apart without a program, and they tended to be stereotyped (even the death of their only son doesn't deter the husband from his Malthusian determination). The plot was rudimentary, largely a cataloguing of horrors to flesh out the premise. I felt I was being *milked* for horror, and so found myself becoming nearly as callous as the villains. And the writing was fluid enough, but extremely hasty: too many times a doctor spied an incoming patient with a fever and flushed skin and

muttered, "By God, if I didn't know better I'd swear that was anthrax." (No, that's not a direct quote, and yes, it's a bit exaggerated.)

This is a book plainly designed to play on—and therefore promote—your paranoia, and you're *supposed* to walk away from it horrified and afraid and ashamed to be human and frustrated to despair at your helplessness before The Great Conspiracy of Evil Ones In Power, and I say phooey.

And now, for an even more warped premise, we bring you Susy McKee Charnas's first novel, *Walk to the End of the World*. I heard Ms Charnas refer to this book (at MidAmeriCon) as "a rather straightforward extrapolation of things as they are," and my hair stood on end. The premise, explicitly laid out right in front in a two-page prologue, is as follows:

Dem Evil Politicians have finally done it—The Wasting has come, and the world goes to hell. All these Evil Ones are men—all the women in government "had resigned or had been pushed out as idealists or hysterics." Now it chances that a handful of these Evil Ones escape the Wasting in previously-prepared shelters—and of course they bring women with them as routine provisions. Needing a scapegoat for their own subcon-

scious guilt, the Evil Men 'debase these women, fix upon them the blame for the Wasting ("The woman tempted me."), and by the time they emerge from their fallout shelters have reduced all women to degenerate beasts of burden. In fact, they tolerate said beasts only because reproduction seems desirable—for *enjoyable* sex, they prefer each other. The women themselves, by the way, cooperate almost unanimously: "... it would be proper and a relief to think of nothing but babies any more, and while the men were crazy with grief, guilt and helplessness it was support they needed, not antagonism." The few dissenters are silenced with clubs, and the next generation are, of course, all good little products of their conditioning. Oh yeah, I nearly forgot: they grow marijuana for food.

Got it?

That's the first two pages. Now, I thought at first that *that* was why my first three attempts to read the book ended in failure. Anyone who holds her brothers *and* sisters in such contempt is not likely to tell me anything I want to hear. But a friend of mine finished it and said, "If you grant the crazy premise, it's not a bad book." So I made two more attempts.

My record was page 32. Even granting the psychotic premise, I found the story that ensued confused, confusing, inconsistent and boring.

Like most diatribes.

Vonda McIntyre's first, *The Exile Waiting*, avoids all the above errors—she never lost my interest, and she has no axe to grind. What she did was write a cracking good adventure with a very real cast who undergo exciting events that change them all deeply.

The background world is described mostly by suggestive details (my favorite method), and seems both consistent and fascinating—I have a few minor quibbles, and you may too, but nothing serious. The characterization is excellent—it's obvious that McIntyre cares deeply for all of her characters, and indeed I had a hard time deciding how many of them could properly be called protagonists (I make it four or five, and even the minor characters breathe with life). The style is slightly “experimental,” and quite successfully so: evidence of artistry rather than pretension to it. And the ending is more than satisfactory. What more could you ask?

Well, quite a bit, actually. I can't honestly say that *Exile* is a Great Book. But it is *damned* good, and surely one of the most promising first novels I've ever seen. This is a woman who has a Left Hand of Darkness in her somewhere. And even if it never emerges, I could settle for a couple dozen more “merely” enjoyable and thoughtful books like this.

In times like these, an enjoyable book is something of a godsend.

Now I come to the first-novel that provoked the most ambiguous reaction, the one that's hardest to review Just Right: Octavia N. Butler's *Patternmaster*.

It would be very easy to do a killer on this book: it has many things wrong with it, some little and some gigantic. My chief objection is that it leaves unanswered every moral question it raises—or rather answers them unsatisfactorily. It posits a world in which psionically-gifted humans called Patternists rule over thought-controlled slave/serfs called Mutes—that is, ordinary humans—and all of these are at war with mutated sphinx-like humans called Clayarks, who are painted as courageous fighters and potentially likable sentient beings. Yet the book concerns itself only with a Nine-Princes-In-Amberesque power-struggle for succession to the throne of the dying Patternmaster by his two strongest sons. In the end, one of them wins, kills his brother, massacres a few hundred Clayarks, and settles down to slavemastering his Mutes. Curtain. I found this outrageous, particularly given the “hero's” own vivid loathing of mind-control.

There are other holes too, enough to make a noticeable pile in the

corner of the Albert Hall. And yet I liked *Patternmaster*, better than the first three books in this column anyway.

Why? Well, partly some good characterization—particularly Amber the Healer, one of the strongest female protagonists since Alyx (comically juxtaposed with Rayal, a more or less traditional hero-stereotype who is dismayed by Amber's refusal to be a traditional heroine-stereotype). But I think it was mostly sheer narrative thrust, pure story-telling, that pleased me most. Butler kept me turning the pages, simple as that: an indefinable skill and a rock-bottom essential for a writer. Butler has as much of it as Vonda McIntyre—what she needs now is a carefully thought-out story to tell.

Enough of first novels. Let's return to Pamela Sargent again, for an anthology of stories by women, about women: *More Women of Wonder* (sequel to an antho which you'll never guess what it was called, that I haven't received for review yet). And before we get started, I'd like to talk about the introduction Sargent supplies. It is for the most part a reasonably accurate history of woman in sf, both as characters and as creators—but when it slips into speculation about the future it begins to horrify me. As when Sargent calls “understand-

able” and “a temptation” the contention of R.C.W. Ettinger that “. . . it is a little hard to see why suckling or carrying a child should produce a special bond, any more than in other forms of parasitism. Does one feel special tenderness toward his tapeworm? . . . it degrades the woman, reduces her to a biological machine.”

But enough. On to the stories. There are six novelettes and one short story, and of these I hated two, found three so-so and loved two. This gives us about a 50% on the Spidermeter, but the two goodies are so good, let's make it 60% with a recommendation to buy.

The ones I didn't like: Joanna Russ's “The Second Inquisition” (Joanna consistently and pointedly refuses to obey the rules of storytelling, even when it would help her. If she's not willing to meet me halfway . . .); and Kate Wilhelm's “The Funeral” (the only thing of hers I've ever actively loathed—I agree it's a work of artistry, but I don't want it in my living room).

The three that were so-so: Josephine Saxton's “The Power of Time” just didn't grab me much; Leigh Brackett's “The Lake of the Gone Forever” was a bit turgid and trite by modern standards—but then it was written in 1949, and did move me; and C.L. Moore has written much better stuff than the Jirel of Joiry series. (Jirel was revolutionary in her day, but only as a token figure, proof that women can

swashbuckle too. Fine, but it's a silly thing for *anyone* to do, regardless of gender.)

Ah, but the two gems . . .

Well, one of them you may already have. Ursula K. LeGuin's "The Day Before The Revolution" originally ran right here in *Galaxy*, reran in *Best Of Galaxy Vol. III*, won the 1974 Nebula, and has shown up here and there since. The first two times I tried to read it (quite awhile ago), I got disgusted and put it down after five or six pages. But by the time I got to this anthology I had learned that the way to approach LeGuin is very slowly, no distractions, and *trust her*. So I tried again, and sure enough it paid off in spades. "Day" is *not* a story, and if you try to read it as one you'll end up feeling as cheated as I did the first time. It has no plot: nothing happens except a drooling old lady reminisces about her past. But forget that: think of it as an excerpted interlude from an as-yet-unwritten novel if it helps, but *enjoy* the bastard. It's writing at its best, beautiful and deeply moving.

And now the one I saved for last: "Tin Soldier," by Joan D. Vinge. As it happens, I just hadn't seen anything by Vinge at Hugo-time—but if I had seen this piece, I would unquestionably have voted her the John W. Campbell Award for Best New Writer hands down—in fact, the story itself deserves a Hugo (it originally ran in *Orbit 14*, which I

failed to read). It is an incredibly poignant tale of two sort-of immortals who commit themselves to a love affair that seems hopeless. She is "immortal" by virtue of FTL time-dilation—she's a Spacer, who returns to Earth every "few weeks" to find 25 years gone by (only women can be Spacers, by the way—take *that*, Captain Kirk!). He is "immortal" by virtue of construction—he's a prosthetic cyborg, a bartender (called the Tin Soldier) whose body is mostly plastic and alloy replacements (except for the exception obviously necessary for a love story). The story of their relationship, around gaps that are a few weeks for her, a quarter-century for him—with the complication of a rigid Spacer taboo against ever making love with the same man twice—is magnificently wrought, told with genuine warmth and subtle artistry. I look forward *very* eagerly to more from Joan Vinge.

Another antho, but this one is integrated: men allowed. (Honest to God, I just heard about an editor of a proposed book of women's sf who has decided to include stories by men, too, "to avoid legal questions about discrimination on the basis of sex." Were any of you male writers out there really contemplating a class action?)

Aurora: Beyond Equality has an

ambitious and intriguing premise. Contributors were asked to write stories based on a world in which sexism has already been transcended. "After equality, then what?" is what editors Vonda McIntyre and Susan Janice Anderson (is there something feminist about having three names?) wanted to know.

Me too. This antho sure doesn't tell me.

Anderson spends six pages of intro passing on misinformation about the "pioneers of non-sexist sf," betraying her virtual ignorance of anything written B.R. (Before Russ), and complains how difficult it was to get the kind of stories she and McIntyre wanted: "'Before I can even begin to write, I have to create an entirely new society,' moaned one of our contributors." (Obviously this contributor had never written sf before: you're *supposed* to do that, with *every* story.) Perhaps this is meant to excuse the fact that five of the ensuing eight stories have nothing whatever to do with the stated premise.

Raccoona Sheldon's "Your Faces, O My Sisters! Your Faces Filled of Light!" is not sf at all, and as bad as the title would lead you to expect: a psychotic woman walks through New York City, hallucinating an imaginary Post-Collapse world where all the men are gone somehow, leaving only loving sisters. While she fantasizes, she is raped and killed. Curtain.

James Tiptree's "Houston, Houston, Do You Read?" is about a world in which equality resulted from the mysterious death by plague of all men—whereupon the women quickly and easily built a utopia. Into this utopia a male astronaut crew is propelled by the usual Time-Warp, and we soon learn that in a truly sane (i.e. female) society, the best thing to do with men is put them to sleep as humanely as possible *after* taking sperm samples for study). Uh huh.

Dave Skal's story never even portrays the society its protagonists discuss, never mentions gender one way or the other, and ends before anything has happened. Mildred Downey Broxon contributes a straight fairy tale set in ancient Ireland; again, nothing touching on sexual equality either way. P.J. Plauger's "Here Be Dragons" is a sea-war story in which it is briefly mentioned—but not demonstrated or discussed—that one of the combatting ships is more efficiently handled because it has an integrated crew: a debatable point.

I should point out that of these five stories, three (Tiptree of course, Broxon and Plauger) were well-crafted and enjoyable, even if they did ignore the assignment—but all three were minor works.

Of the three writers who actually attempted to fulfill the title's premise, two produced abominable stories: Joanna Russ's "Corruption" is even more unreadable than usual,

and Craig Strete's story is opaque self-indulgence combined with Amerind propaganda.

BUT: I really *loved* Marge Piercy's "Woman on the Edge of Forever," a genuine attempt to portray a non-sexist society of the future (one which actually includes men!). As with Sheldon's story, it *may* all be just an hallucination on the part of the protagonist—but I don't care. What a lovely hallucination! Beautiful, powerful writing, much thought, and a basic fierce love for her own characters: all these consistent attributes kept reminding me of Sturgeon at his best. I especially enjoyed Piercy's imaginative non-sexist pronouns, something I'd have sworn couldn't be done painlessly. According to the bio-stuff at the end of the book, this story is excerpted from a novel-in-progress which I'd greatly like to see.

AND: there's a thoughtful essay by Ursula K. LeGuin, reflecting back on *Left Hand*, which is as enjoyable as everything that lady writes.

BUT: put it all together and it comes out about 35% on the Spidermeter. As I've said before, editors shouldn't make premises they can't keep. And this one was such a tantalizingly interesting premise . . .

I've about run out of new stuff.

How about a few Old Pros?

I may as well talk about Kate Wilhelm's *The Clewiston Test* now. I've been stalling on it, hoping I'd get the time to re-read it, because my reactions to it are so ambiguous and confusing. But there's no time, so . . .

What it is, I *think*, is a portrait of a marriage being torn apart by stress, as seen through the eyes of both husband and wife. It would take much too long to explain the plot, or exactly why the book so angered and frustrated me, but basically it comes down to this: we are presented with what SEEMS to be an either-or situation. Either the wife's perceptions are correct, and her supposedly loving husband is really a hopeless neurotic—or, the husband's perceptions are correct, and his wife has secretly taken an experimental drug with behavior-altering side-effects. Now, the ending of the book *seemed* to me, when I read it, to vindicate the wife—she makes no attempt to repair the marriage, even refusing to explain to her husband what she feels he's been doing wrong, and walks out.

A supporting character spends the closing pages admiring and congratulating her for her triumphant enlightenment, and the husband apparently wanders off to try and deduce, from the few extremely misleading hints she's dropped, just what went wrong. Feminist friends of mine just loved the ending—

especially divorcees.

Trouble is, I remained convinced at the end that it was the *wife* who was cracking up—I believed, right up until I was specifically told otherwise at the end, that she *had* taken the drug. So the ending frustrated me.

Then I heard Kate, at MidAmeriCon, tell a roomfull of feminists that the notion of subordinating her art to a vehicle for feminist propaganda—for *any* cause—appalled her. So I went up after and asked her how the hell come she'd written such a feminist-propaganda book, and she blinked in surprise and said she hadn't.

I guess I read it wrong, and I fully intend to go back and read the book a second time—and I urge you to read it in any case. Like everything from Kate's typewriter, it is exquisitely crafted and holds the attention like a magnet—and it will probably confuse and annoy you for as long as you try and make it grind your axe for you. I think my problem was in seeing the characters as symbols rather than people. The Sexual Liberations wars have left us all a bit paranoid, one way or the other.

The book is not, by the way, packaged as sf at all—you'll have to venture out of the sf section of your bookstore. But don't let that stop you: it's a science fiction novel, all right—and who knows what you might stumble across

while you're looking for it? ("... to boldly go where no fan has gone before.")

Running out of room. Let's hurry on to Zenna Henderson's stories of *The People*. A movie based on them just came on the tube recently, and it inspired me to dig both *Pilgrimage* and *No Different Flesh* out of the jumble and re-read them. Sometimes you forget just how *nice* an old friend is if you haven't seen 'em for awhile.

Both books are disguised novelette-collections, but better disguised than usual, with connective sections that really work in giving novel-thrust to a bunch of collected episodes. Both are very slightly overwritten, and both have a tendency to get a bit too sugary for my taste in spots. But both are extraordinarily enjoyable stories about real characters, told with warmth, insight, and genuine compassion. Zenna, too, reminds me of Theodore Sturgeon, in that the conflicts which interest her are the personal, interior ones. She is old-fashioned enough (God help us all) to believe that humans can act admirably and lovingly—and optimistic enough to believe that an extraterrestrial race which does so as a matter of course might just bring out the best in some of us. I like Zenna for some of the same reasons I like Pangborn, Sturgeon and LeGuin—because I admire and respect her

characters, and because she holds out some hope for Homo Sap.

And because she's a first-rate storyteller.

Check out both of these books, if you haven't already. The first is a hair better than the second—but you won't mind at all, and both books will stay with you for a long time.

Happens I'd never sampled any of Marion Zimmer Bradley's Darkover cycle—they just didn't look like something I'd get into. But then I was doing this women's column, and here was *The Bloody Sun* on my desk, so . . .

Now, granted I'm not familiar with the series—but that's not my problem, it's Bradley's. Granted this seems to be one of the minor Darkover novels—if I'm going to read just one, it ought rightly to be one of the biggies: *Heritage of Hastur*, say. But this is what I had, what I read—and I didn't care for it.

I didn't believe the hero: his "personality" seemed to be nothing much more than the precise collection of neuroses and compulsions which would keep him moving through the plot, shifting with the requirements of each scene. The plot itself was Byzantine, reminding me irresistibly of those Robert Benchley operasynopsis parodies where Immergluck descends from Valhalla in a golden Chrysler at the end of Act IV to reveal that it was really Ellen and not Helen who was stolen

by the gypsies, producing the bloodstained derby as proof.

I mean, it was okay light reading, but I didn't *believe* it for a minute.

As I warned you, this hasn't been an exhaustive or even representative look at women writers: I haven't mentioned anything by Katherine Maclean or Judy Merrill or Lisa Tuttle or Kathleen Sidney or Sonya Dorman or Phyllis Gotlieb or Andre Norton or Anne McCaffrey or . . . the list is long. But we've seen enough to support my original contention: women may be a statistical minority in sf, but their talent/no talent ratio is as good as or better than that of male writers, and more women should be writing.

How do we arrange this? Well, if any of you are women who are thinking of becoming writers, I strongly advise you to marry (if anyone) another artist of some kind. I'm a writer, Jeannè's a dancer, and we split the scut-work fifty-fifty—except when one or the other of us gets hot on the scent of the Muse, whereupon the other one takes over *full* responsibility for the house-running and baby-raising for awhile. Nothing less will serve, and I don't believe I could be a writer without the agreement Jeanne and I have made. Don't settle for less than the best, is all I can advise you.

Because we urgently need more good writers, if sf is to survive boom times. ★

CHARLES SHEFFIELD **What Song
the Sirens
Sang**



**When James Webster
speaks—you listen!**

MY DEATH WON'T BRING out the banner headlines. That's fine with me. I suppose by rights I should be up there with Lee Harvey Oswald, Sirhan Sirhan, Leon Monde and What's-his-name Bremer. I'll settle for being the one that got away. Saved civilization, too—as I see civilization—but that won't last too long. Just until I'm gone.

Do not go gentle into that good night. I hear you, Dylan, and I'll keep up the struggle. But I've ridden ten thousand days and nights from James Webster's death, I'm old and tired, and no man lives forever. It's the right time for this.

Why am I recording here? Maybe I can't bear to see a piece of history going wrong into the record books. And maybe I want to warn my spiritual heirs to be ready when it happens again.

I came to cover the Webster campaign in '80 by accident. Got in late, when Jim Dotter had his first stroke. It's been a short twenty years since Jim went. I still remember the shock of the news, the

rush to get ready and out of the office and onto the plane. It sounds like boasting when I say that I was overkill for that local primary but I'm past the age for modesty—and I don't expect I'll have to defend this to anybody.

There was no time for a briefing from the Channel before I was on my way, but after thirty years I could manage well without it. During the flight I read releases of Webster's speeches and looked at the local coverage reports of his meetings. The combination didn't make much sense. Trite words, banal sentiments—and a tremendous response from the crowds. Something was out of tune. Thin gruel in the speeches, rich reactions from the audiences.

I picked up the campaign trail in Atlanta. Peach blossom time, with the heat cracking eighty the afternoon I flew in. You could see the Southern beauties opening in the sun like buds. Riding in from the airport I could feel a pressure in the air like the undercurrent of a thunderstorm. Electricity, building up and raising the hair on the back of my neck—and all on a cloudless March afternoon. I'd felt it only twice before, and never as strongly. People fever. Alamogordo, on the day of the first test of the first bomb. And Washington, D.C. the afternoon of Nixon's resignation. Something was taking hold of Atlanta and winding it up like the spring on an old-fashioned watch.

There's not a gift the world can give like that it takes away. I won't argue the point, but seniority has its advantages. The younger men were eager to tell me what had happened before I had arrived. A movement for Webster, building to great peaks every night at his open-air rallies. Orgasms of emotional response that left the audiences drained but uplifted. That, from experienced newsmen. Whatever it was that the vintners buy, James Webster was selling it in Atlanta.

As you may know from my writing, human interest isn't my main line. For political analysis, I need facts. Over bourbon and branch I got a fair sprinkling of them from a young local reporter. Webster had sprung up from nowhere, overnight. No previous track record in politics, no big backers pushing him along as a puppet—but somehow he had persuaded the local power groups that he could take this primary.

Support staff? Almost none. Lighting up a big cigar (building an image—how well I remembered it. Thirty years earlier I was struggling to keep a pipe alight) the youngster went on. Webster made all the plans for his meetings himself, wrote his own speeches to the last comma, set the exact timing for everything. Brief press conferences, and no remarks off the record.

"Ever try for an interview with him?" I asked.

"Oh, sure. No good though—a few words with him on the tele-

phone were as far as I got," he said. Not too surprising—a local and an unknown began with a couple of strikes against him.

How about family and friends? A bit more meat there. From a rich family near Athens, Georgia, but James Webster was almost the end of the line. One great aunt still living, up north of Athens on the family estate. Easy enough to get to see her, but hard to understand what she said when you did. Yes, he'd done that, was sure I could do it too.

I brightened a bit. Old ladies are one of my strong points. Either I just like them, or they relish my polite approach. Miss Amelia Webster would be on my visiting list.

Before we could get to Webster's early life it was time to cover the evening rally. My young friend put out his cigar with considerable relief, and we left.

Outside, there was still that feeling of excitement in the air. The swarms of people converging on the great field where Webster held his rallies were chattering to each other as though a real treat was in store for them. At a political rally? There may be duller events in the world, and the political pros do get a big kick from them—but they are caviare to the general public.

I took up my position in the crowd, about a third of the way back from the stage. Like the psychologist at the burlesque show, I got part of my moneysworth look-

ing at the reactions of the audience.

It began at eight, with no introductory speakers or warm-ups. First, a low pleasant music from the big speakers hung around the field. Familiar, vaguely so, but I couldn't place it. At eight-five, Webster came on to the floodlit stage with its black curtains and white canopy. I began to make notes.

Short, tendency to pudginess, receding dark hair, a pleasant plump face. No sign of the great vitality or exceptional good looks that the charismatic (dreadful word) leaders so often enjoy. He stepped forward to the battery of microphones and began to speak. To my surprise the soft music continued, blending with his words.

Like most reporters, I have a very good memory for words. We need it. It's *party training*, partly natural talent. I've taught myself to supplement memory, as a matter of course, with notes made on the fly during speeches. With their aid I can get an almost verbatim reconstruction.

After Webster's speech I realized that I had encountered a unique phenomenon. For the first time in twenty years, I had forgotten to take any notes.

Forgotten? That's the wrong word. My notes of his speech read—in total—"slightly nasal voice. Odd variations in pitch and intonation." That's it, the whole thing. I had stopped writing because listening had become so important,

I didn't want to risk missing a word.

Webster was amazing. When he talked about the past, I felt as though I could see and hear the fathers of the country, working to create and protect my heritage. When he spoke of the future, I felt my duties, my responsibility, my part in building a brave new world for our children. I *felt* these, physically, like a fever in my blood. As Webster directed I laughed, I dreamed, I raged, I cried, I planned. At last he ceased and raised his arms above his head. After a long hushed pause the first tentative applause built rapidly and became thunderous and prolonged.

Back in my hotel room at midnight I tried to draft an article to send north. It wouldn't come. How do you put on paper the most stirring event of your life? After a while I stopped trying and leaned back in my chair. A new but very old thought was tugging at the edge of my attention. I'm just old enough to remember the newsreels of the goose-stepping figures and the crashing shouts of 'Sieg Heil.' There is something very frightening about a crowd with a single mind—a mob, that's still the best word for it. If James Webster had told us to go and pull down City Hall, what would we have done? I could guess.

I didn't sleep well.

Next morning I called Webster's campaign office and asked for an interview. After a surprisingly short run-around from a secretary, he came on the telephone himself. Was I the Bill Forrest of T.V. and newspaper fame? Yes, I was. (Vanity, vanity, all is vanity. I never failed to get a thrill from being recognized, even by crooks and villains.) Again, the seniority was paying off. Webster would be very happy to see me at his office at two o'clock.

Close-up, I confirmed last night's impression. Physically unimpressive, with a distant look in his eyes. I began the interview conventionally and asked about the election.

If you had asked me about Webster's voice after last night's speech I would have ignored my first scribbled note and told you that it was compelling and persuasive. Today it was nothing. Monotonic, soft. He wouldn't look me in the eye. Yes, this was his first campaign. No, he would refuse a television interview now, he was not quite—hesitation—prepared for it. Perhaps in a month or so. Certainly, he was completely confident of a win here. Future plans? Wait and see, but this was only a beginning.

After three quarters of an hour I gave up and left. James Webster was sharp and confident all right but he came across to me as a cold fish, a man you wouldn't trust with a dime or your daughter. I knew I couldn't send back an interview that

said that, without rhyme or reason, I disliked and distrusted the man. But I did, strongly.

What had happened to the man who had spoken last night? No sign of him today. One phrase came back again. Not *prepared* for a television interview yet. Why had he agreed to an interview with me? Well, I could guess at that. Even a villain—and that's how I was thinking of Webster now, with no evidence to support me—likes to go on ego-building trips.

I'd picked up a few useful things during the interview. First and foremost, James Webster thought that James Webster was wonderful. I've sensed that from many—from most—politicians, but here it came across as a contempt for anything that was not James Webster. Long-time politicians may feel that way, some of them, but they hide it a whole lot better. Second, the campaign really was one hundred percent his own. No one else was more than a minor hanger-on, dispensed with if and when Webster chose to do it.

I had a day of useless churning and frustration, until I finally rented a car and drove north for Athens, and Miss Amelia Webster. According to James Webster she was his only surviving relative. I wanted to check his version of his early career with her recollections. According to him it had been brilliance too much for his teachers to understand, until he had become impatient with them

and left the stupid school system forever.

I moved to another universe. At eighty-five, the present must seem rather like a dream world. The real world, the world that matters, is mostly the past. Amelia Webster was sitting outside on a stone patio, looking out over a landscaped formal garden from a brightly colored reclining chair. I was led to her through the house and left to stand a few minutes inside while her companion went to her and told her about my arrival.

The fading photographs on the side tables showed a woman in her twenties and thirties, black-haired and vivacious. No photographs after that. Amelia Webster, wisely, had frozen her recorded image at thirty-five.

The bone structure and the alert dark eyes were still there, but everything else had changed beyond recognition. Thomas Hardy said it exactly. 'They must forget, forget! They cannot know what once they were, or memory would transfigure them and show them always fair.'

On that warm patio, sustained by endless cups of China tea from pale blue cups, we drifted for three hours, back and forth over eighty years. I didn't hurry. Now and again we circled back to 'young James,' then away again to the Christmas Ball through the deep snow, the beloved killed in the Great War, to the first automobile ride. By five o'clock I knew the

real Amelia Webster, passionate and sparkling, hidden inside the accidental husk of old age. And I had built a clear and disturbing picture of James Webster.

'Bad Blood.' That was the ominous key phrase that Amelia had used. The other words? Glacially intelligent. Selfish. Vain. Those are mine, not Amelia's, but her longer descriptions added to produce the unpleasant summary. After high school James Webster had attended college for two years, then quit suddenly and returned to the family estate. There was a faint impression of something about his departure that would not be mentioned to anyone outside the family. I checked it later at the college and found well-disguised traces of a tragedy involving the death of a mentally retarded girl.

All this confirmed my own instinctive reaction. The central discovery from my meeting with Amelia was more tangible. James Webster maintained a study and complete recording studio in one wing of the house. For the past year, he had spent all his time there until he began his campaign.

That night I drove back to Atlanta and again attended Webster's rally. This time, I was determined to remain aloof and analyze his speech in objective terms. Can you believe me when I tell you I failed totally? The setting was just as before, the simple outdoor meeting place, the soft music before he ap-

peared. I made my notes about the audience, the lighting and the expectant tension in the air. Then Webster began to speak and I was gone again.

I returned to my senses and control of my own body more than an hour later. I had been carried to great heights, shown the beauties of the world, dipped far into the future, offered happiness beyond belief—if I would help James Webster in his chosen works.

Another sleepless night followed. Smoking and drinking like a fool, until the back of my throat was raw and my head spun when I lay back. But by morning I knew what I wanted to do. I made another appointment with Amelia Webster and drove again to the big house with its long oak-shaded drive. The weather had broken and it was twenty degrees cooler, so today we remained inside. Lunch was served in a dining room big enough for thirty people. Amelia made sure that I was served enough for three meals but limited herself to soup, cheese and wine. Again, we talked our way here and there through the century, while I tried to refuse a succession of well-prepared dishes.

With the coffee, Amelia Webster showed me what a mistake it would have been to underrate the mind in the fragile body.

“Now, Mr. Forrest, that was very enjoyable. I don’t have too many interesting guests these days, you know. But why don’t you tell

me now what you came for.” She smiled. “I’m well aware that men no longer court me for myself alone. What do you want?”

She was half-wrong, in my case, but half-right too. I shrugged my shoulders and smiled back at her.

“Miss Amelia, I suspect that you know already.”

“I think I do. It’s James’ studio, isn’t it? You were very polite yesterday but I could see you almost sniffing the air when I mentioned it. You see, I’ve had the feeling for a long time that James has been up to something—and my instincts tell me that it’s not something that I’ll feel proud of.”

She rose with difficulty from her chair and went slowly over to a large teak sideboard.

“I don’t know why I should trust you this way, but that’s always a mystery. Here are the keys to the West Wing. The study and studio are on the second floor. James will not be back to the house until tomorrow evening. I ask one thing only, Mr. Forrest. Tell me nothing of what you find. Peace of mind is something I cherish these days.”

Amelia Webster. A remarkable woman. We missed each other by about thirty-five years, and I’ve regretted it ever since. Perhaps the next time around.

It was three o’clock when I took the keys from her and left the room. It was close to midnight when I climbed back into my rented car and began to drive back to Atlanta.

That was on March 19, 1980. If you look at the newspapers for that year, you will find that James Webster was murdered on the evening of March 28th. Shot by an unknown assassin in the middle of an evening political rally. The shot was fired from a considerable distance using a high-powered rifle and a telescopic sight.

No, I must correct that. The telescopic sight wasn't in any of the news reports—they never found the rifle.

I shot James Webster. I didn't regret it then, and although the idea of murder for political ends appalls me, I have never regretted it since. In the eyes of the world, I might have been able to justify James Webster's murder for good political reasons.

But seen through those same eyes, I committed the greatest treason. I did the right deed for the wrong reason.

Let me come now to the heart of it.

It all boils down to this: what was it I found in Webster house? Well, what had I been expecting? It was hard to put a name to it, but mass hypnotism comes close. A 'hypnotic generator,' maybe, that would allow one man to mesmerize a whole crowd. That was what was floating around in my mind.

I found worse than that. First was Webster's diary. Not for the past;

for the future. Meticulously noted, day by day and meeting by meeting, the path to the Presidency of the United States.

Five primaries, the convention, the television speeches, the pre-election addresses.

Alone, that would have been nothing. Men have dreamed of power, and it is certain that many have made detailed plans to get it, but failed along the way. Webster would not have failed. What I found in his studio proved that.

It took a while for me to put the pieces together. First there was the general theory. Three heavy black loose-leaf binders, full of mathematics and right over my head. Next to them I found a whole series of Webster 'speeches.' Each had a title and a date, running through the end of 1980. Inside the folder for each speech it looked like the score for a complicated opera, plus lots of added notation that I couldn't follow.

The words—I recognized some of them, from Webster's speeches in Atlanta—had their own diacritical and pitch marks, above and below them. The music that went with them was precisely annotated as to volume, crescendi, diminuendi and instrumentation.

On a desk in the corner I found another set of books. Famous speeches by Demosthenes, Cicero, William Jennings Bryan, Adolf Hitler and others. Each had numerous changes, added by Webster, plus

again his strange 'orchestration' and added symbols. I finally realized that these were test pieces of Webster's theory and techniques.

The whole studio was packed with sophisticated recording equipment. Monitors for recording and varying pitch and intonation. Complex tape decks to permit multiple-track recordings, dubbing and splicing. Oscilloscopes to permit the display of wave forms, filters for signal processing, and signal synthesizers. I consider I know a fair amount about recording techniques but I was out of my depth. Webster had a couple of hundred thousand dollars worth of equipment in that single room.

I might never have fathomed the mystery without Webster's direct assistance. The key was in a thin blue book, over on the low table by the bricked-up fireplace of the studio. James Webster had kept a private log and diary for all his work.

Perhaps everybody needs someone to talk to—a Boswell, a Horatio, a wife or a confessor. James Webster had followed Samuel Pepys and used a private diary.

From it I at last understood the true scope of his work, his ego and his ambition.

James Webster, with his failings, was a genius. He had developed the basic theory of human communication, the underlying eternal rules that govern human action and reac-

tion. From that theoretical beginning, he had gone on to find the precise combinations of sounds that would stimulate a particular emotional response. It was an exact science. The calculations were long and complex and exact results hard to achieve, but Webster had developed an 'approximation theory' that used combinations of English words and musical sounds to approximate the mathematically optimal signals.

His 'speeches' were approximations of this type. As he said in his diary, "all the efforts of the great orators through history have been crude and intuitive attempts to do empirically and unreliably what I can now do with absolute assurance."

A great man could have found noble uses for his discoveries. Webster had no such objective. The pursuit of personal power, above and beyond any leader in history, was his ambition.

Did I mention at the beginning that this is a confession? It is. Why didn't I reveal Webster's plans to the world and let society deal with him? Wouldn't I have been regarded as a hero, the man who saved the country (and the world) from an absolute dictatorship? Aye, there's the rub.

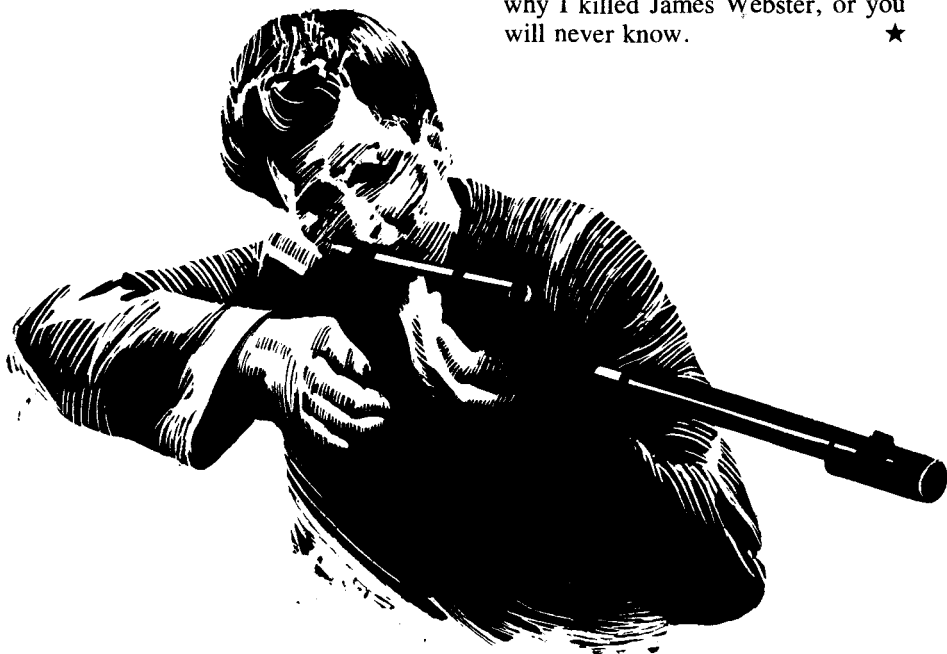
I told you I am appalled at the very idea of killing for political reasons. This is the simple truth. I shot Webster for different and more selfish reasons.

To those people who have heard of me at all, I am a political writer. I have been one for so long that they cannot imagine me as anything else. But every harlot was a virgin once. Scratch a hack writer, and underneath you often find a poet. That's me. Fifty years ago I decided that I had to earn a living and turned my back on poetry. Only the longing and the love lived on.

When I left the Webster estate that night, so many years ago, I went to my hotel and I thought, long and painfully. I knew that all the great orators of the past had become fumbling amateurs, blindly stumbling towards Webster's exact knowledge.

But I knew more than that, much more. I thought of Keats, Coleridge, Milton, Eliot and Wordsworth—of Shakespeare. Their words, long cherished, flooded my mind. And music. I heard the complex web of the final Rivercare of the 'Musical Offering'—the de profundis opening of the Ring—the whirlwind and lightning finale of Schubert's C Major Symphony. All now to be dismissed, discarded, crude approximations to a single attainable absolute. My world was to become obsolete.

Take your fifty favorite pieces of music, your hundred best-loved poems. Imagine them gone from the world, swept away by a final and terrible progress. Now you know why I killed James Webster, or you will never know. ★





DIRECTIONS

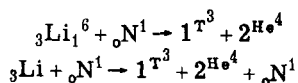
To: Jerry Pournelle

I've waited two weeks since reading your article in the October issue of *Galaxy* regarding the prospects for Controlled Thermonuclear Fusion (CTF) to write this letter. I'm writing this while flying home after attending the Second Topical Meeting on the Technology of Controlled Thermonuclear Fusion held in Richland, Washington Oct. 20-23, sponsored by ERDA, EPRI, and the American Nuclear Society.

Regarding the technical matters covered in your article, I have only two comments, regarding the emphasis rather than the content of your article:

1) In virtually all present concepts of the CTF reactor now being considered, the basic thermonuclear reaction utilized is the D-T reaction rather than the D-D reaction which you seemed to emphasize. This is primarily due to the much lower ignition energy (10 KeV (10^8 °C)) for D-T than the D-D reaction (100 KeV (10^9 °C)) for a plasma power density of 10 watts/cm³.

2) Since the D-T reaction will predominate, a source of tritium is required to provide fuel for the reactor. The amount of tritium occurring naturally is miniscule compared with deuterium, making recovery of natural tritium impracticable. The tritium will be therefore 'bred' in the reactor coolant-breeder blanket by means of the reaction



using the neutrons produced in the D-T

plasma. The lithium in the blanket could serve the dual purpose of tritium breeder and reactor coolant to provide heat for a steam generator. The preliminary nature of CTF research is shown, however, by the fact that the chemical form of the lithium used for the reactor blanket has not yet been extensively specified. I received the impression at the conference that there is a general tendency to regard liquid elemental lithium as the likely candidate. Experience with the Liquid Metal Fast Breeder research shows, however, some of the major engineering, corrosion, and materials compatibility problems which can be expected from such an approach. In this context, Dr. S. Sze of the University of Wisconsin Fusion Study Group has developed the idea of using a free-flowing lithium oxide (Li₂O) microsphere bed for use as both reactor coolant and tritium breeder. This approach, if proven practical in terms of particle transport and steam generator requirements, could alleviate many of the major problems in CTF reactor blanket design.

Regarding more general matters in fusion research:

Anyone working in CTF research would agree with you wholeheartedly regarding caution over CTF as a miracle cure for future energy needs. Although plasma physicists have made steady progress in the physics of the thermonuclear reaction (both in magnetic and inertial confinement), truly massive engineering and materials problems remain. As a nuclear engineer I often cringed at some of the design parameters specified at some of the technical sessions. (30 x 10⁶ BTU/hr.ft² heat load on divertor plates, 10 Tesla magnetic fields, etc.), and I kept thinking, "How do they ever expect to get this thing licensed?" It's early yet, but the point I would really like to make here is that even the most optimistic scenarios don't envision CTF making any significant impact on our energy needs before the year 2010. Until that time, the huge investments necessary to develop CTF are just going to be a drain, perhaps a significant drain, on our economic resources without any significant payoff.

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Also, the ability of our research to achieve a workable commercial CTF reactor depends largely on the health of our fission reactor economy. Many of the problems associated with developing a CTF reactor are the same kind of problems associated with fission reactors, and it is the present nuclear power industry, along with the research establishments of the national labs and the universities, who are going to have to provide the scientific and engineering manpower to solve these problems. The people who are going to tackle CTF development are going to have to be produced by the Nuclear Engineering departments of the universities and the size and existence of these departments depends on the state of the nuclear power industry. This may be an oversimplification, but I believe the general idea valid. If the light water fission reactor industry is destroyed by the specious obstructionism which now confronts it, our energy economy may not be able to achieve a commercial CTF reactor within a time period sufficient to help meet future needs. As it is, it's going to be touch and go. In short, regarding fusion power as any kind of short-term (50 years) alternative to fission power for meeting our energy needs is wishful thinking, as are, in my opinion solar, geothermal, hydroelectric (deadly dams!!) etc. power. Besides, we don't worry about the ecological effects of these power sources on a large scale because nobody has really studied them yet.

Enough, I'm getting a little queasy. If man were meant to fly. . . etc.

Sincerely,
Dr. T.A. Thornton

Babcock & Wilcox Co.
Lynchburg Research Center
Box 1260
Lynchburg, VA 24505

Jerry's reply:

The environmentalists were horrified at the thought of all that liquid sodium in the Liquid Metal Fast Breeder Reactor (Fission); what will they say to liquid Lithium, and

breeding nasty Tritium as well?

I suspect that as soon as Fusion becomes somewhere near practical, the "ecologists" and "environmental protectors" and "concerned scientists" who are now so thoroughly in favor of fusion that they wish us to defer all new power plant construction until fusion is available will, suddenly, become enemies of fusion; God alone knows what they will be for then.

"But this be law, I will maintain, until my dying day, Sir: that whatsoever king shall reign, still I'll be Vicar of Brae, Sir." (See also Inferno, 2nd round, 7th circle.)

My thanks to Dr. Thornton for his kind comments and additions to my article on Fusion without Exlax.

Mr. Baen:

I have grown tired of seeing J. Pournelle's articles gushing about the wonders of atomic fission/fusion/etc. There are severe objections to atomic fission (I haven't seen any solution to where we'll put the waste from Pournelle's office, to give just one example), and atomic fusion is still some distance in the future and thus not to be relied on.

I am also tired of helping pay for such articles every time I buy an issue of GALAXY.

In short, how about equal time? I'm sure some of the physicists who donated their time to California's Proposition 14 would be glad to counter Pournelle's assertions, and presenting both sides would give your readers a more balanced treatment of the subject. Currently, all they're getting is the assertion that objections to nuclear power are based on "superstition," which is not the case.

Sincerely,
Bruce Duncan

366 Lexington St.
San Francisco, CA 94110

I would be happy to consider for publication an article such as you propose. . . of course as Science Editor Dr. Pournelle would have the right of rebuttal in the same issue. Any takers?

Dear Mr. Baen,

I would like to enter one vote in Alter's favor in the election suggested by him in *The Alien Viewpoint* in your October issue of *Galaxy*.

I would also like to express my appreciation of John Varley's work, which I have enjoyed greatly. But I do have a question about it: "Phantom of Kansas" and "Overdrawn at the Memory Bank" both take place in the same general setting—future settlements on the moon, as does "Bagatelle", but "Bagatelle" has no reference to the depopulated Invader-controlled Earth described in "Kansas", quite the contrary. Are they or are they not parts of the same line of "future history"? And what relation does the space-time setting of "Gotta Sing, Gotta Dance" bear to all this?

I have enjoyed all the stories which I have read in *Galaxy* since the Jan. 1975 issue, which was the first I purchased (following the demise of *IF*). I have six 1975 issues and seven 1976 issues, acquired by watching newsstand shelves like a hawk. I can tell by the continued stories that I have missed less than nine issues, but the uncertainty of whether you are publishing monthly or bimonthly or whatever is driving me crazy, so I'm going to take up your silver anniversary offer as indicated on page four. As a librarian I am morally outraged by the thought of mutilating any printed work, even one which belongs to me, so I am not sending you your little coupon from page four, I'm sending a hand-written copy of it to the address given on the coupon itself. I hope this doesn't snarl up your bookkeeping too much.

On to other affairs: Tell Mr. Zelazny to hurry up and finish the Amber series, please!! Also, in your February 1975 issue you asked, after the last letter in *Directions* which referred to Poul Anderson's work including the Flandry stories, "Is there a future for the Race, after the Empire? I mean with the damn Merseians just waiting their chance, and all. . . Well, Poul?" Please ask him again. Louder.

And congratulate Mr. Niven on his present

story and suggest that he and Mr. Pournelle consider doing a Purgatorio.

What are Hal Clement and Gordon Dickson doing lately? Didn't the Dorsai series originally include a couple more novels in the original plan?

I know from personal experience that even a lousy writer can't ever stop writing and making up stories, and I haven't seen any obituaries on a lot of the great writers in the field, so where *are* they? I realize that not everyone is an Asimov, but they can't expect people who only became old enough to appreciate SF ten years ago to be placated by reprints from the fifties and early sixties forever; SF doesn't have quite the obsolescence problem of hard science, but it *does* date. And even the reprints aren't numerous enough. As a twenty-two year old SF addict I feel sadly put upon.

Sincerely,
Elise M. Grasso

RD #6A

Narragansett, RI 02882

Varley replies:

"Phantom" and "Overdrawn" are both parts of what I've started to call my *Eight Worlds series of stories*. You're right in thinking that *BAGATELLE* doesn't fit in. It's from an altogether uglier future, and one that I'm unlikely to return to for a second story. In the *Eight Worlds series*, the *Invasion of Earth* took place in 2050, and most of the stories are set three to four hundred years later. Everyone in them is descended from a moon colony of about ten thousand people which was not affected by the *Invasion*.

GOTTA SING, GOTTA DANCE is also a part of the *Eight Worlds series*, but the *Rings* are not one of the *Eight Worlds*. Those are *Mercury, Venus, Luna, Mars, Titan, Oberon, Triton, and Pluto*. The *Ring society* does not interact much with the rest of humanity.

Best,
John Varley

Dear Mr. Baen,

I have begun this letter to cast my vote in

favor of the emancipation, liberation and publication of Alter Ego. But I suspect I may stray from that subject, since I have just exhausted it.

I want to compliment you on the balance you maintain in *Galaxy*. The non-fiction departments are particularly outstanding. Spider Robinson is the most useful, and in many ways the best, book reviewer. Dr. Pournelle is also the best—in some ways—writer of science columns in sf magazines. (I don't have anything against Asimov, it's just that he concentrates primarily on what has been or what is; Pournelle places more emphasis on what might be.) And Alter, being rather a unique specimen, is by definition unrivalled.

Wishful thinking. Jerry Pournelle has in the course of writing his columns turned me on to certain non-fiction books which I've found very rewarding. (He also turned me off of one, which I suspect was an equal service.) Being an alleged sf writer myself may have something to do with my enjoyment of and need for such books (G. Harry Stine and Stephen Dole especially) but I find my appreciation as a reader enhanced. The wish I referred to is for an occasional column or listing of non-fiction material of particular interest to readers & writers of sf. It only sounds drab. I actually enjoyed Asimov's *The Noble Gases*, but I stumbled on it by chance. And then there are the books by Carl Sagan. Beautiful. Is such a wish even realistic, though? How many sfers really wonder about that sort of thing? I know there is at least one.

Sincerely,
Ron Nance

910 Burch St.
Ardmore, OK 73401

Dear Jim,

First: I wouldn't have written just to vote on the Geis/Alter schtik; I kind of like the brouhaha as is. Both of 'em, hammer and tongs. If that's legitimate, so be it. . . .

Second: the Spider encourages all Readers to vote for the Hugos. Write on. But there's

something more we in the science-fiction field should be doing, could be doing, instead of moaning 'why isn't there interest in space research' and 'why do they only publish books on space when Viking is about to land on Mars.'

The suggestion is to be found in *SCIENCE NEWS*, 25 Sept. 76 issue, page 199 (numbered cumulatively; it's not a heavy mag) in a short article about the upcoming space shuttle which is to be named "Enterprise." Guess why? Because 60,000 Trekkies wrote in to NASA and suggested that should be the name.

As the article points out, the name is not the most important thing. The important thing is that when 60,000 people (or even 10,000) write in and demand something, attention is paid to them.

Why aren't we writing? Why aren't we demanding more research, more utilization of our space efforts, and the resources we are rapidly losing in trained scientists and functioning laboratories, and so forth? They are being absorbed into other industries; they can hardly go on the breadline waiting for more work in their chosen field if NASA—or some agency—fails to employ them. Why do we let authoritative writers like Patrick Moore blandly assert, as he did in *The Next Fifty Years in Space* that satellite technology is not being used for the convenience and needs of ordinary people? (His statement inferred that communications satellites did not carry telephone conversations; a misstatement then and now. After all, the book carries a 1976 date.) For him, space research is about dead.

Why are we so willing to complain among ourselves and not on paper, to the proper authorities?

Why do we—space buffs, that is—only get a 'good press' when something spectacular is going on? Why aren't we out there in front, demanding it?

How about it, Dr. Pournelle—you've suggested one project, the electron bombardment, inertial confinement fusion project at Sandia. We've all got congressmen. I'm willing to write mine. Got some more ideas,

and addresses for the proper agencies?

Sincerely,
M. A. Barter

3242 Winton Rd. S.
Rochester, N.Y. 14623

Trouble is, really good ideas aren't all that common . . .

Dear Mr. Baen:

I was happy to see your October issue. The departments were interesting, as usual. "The Alien Viewpoint" is definitely a plus. (By the way, I vote for Alter-Ego, because Geis has enough to say in Science Fiction Review, and Alter is the more interesting of the two). Your book review column is also very good, with Spider Robinson being one of the better reviewers around today, and your art selections are breathtaking. I'm starting to think that Fabian is the best artist in SF today.

But the most surprising thing about the issue was the fiction. I usually save all the short fiction for the last three months of the year, and then read it all at once. This year the October issue of Galaxy was the first magazine I read all year. The two Novellettes were very well done. Varley is very quickly becoming the best new writer around, and "Bagatelle" was very good, in spite of the predictable ending. "Seeker of the way" on the other hand was good throughout. I would like to know if Mr. Schmidt has been published before and where? The Niven serial was as usual competent, but the short stories were pretty dismal. "You'll be a real sensation", and "The man at the bottom of the Sea" were unreadable, and R.C. Walkers "Act of faith" was a good idea lacking in the execution.

But what actually prompted me to write was Thomas J. Murn's letter. When he quoted Chip Delany's essay "About 5,175 words" in defense of "Dhalgren", which is full of "unintentional confusion, ambiguity, and shallow action", it was just too much for me to bear. Now, I am not a "dinosaur" who reads nothing but "the sterile space-poop of the Laser books", but a genuine

New-Wave fan from back when it was the new wave (which Delany was never a part of), and I still say that Dhalgren is pretentious garbage. Dhalgren would have been fairly interesting as a novella (say about 25,000 words), but as it stands it is boring with a Capital B, and unreadable, and if I want to read literature, or whatever it is Dhalgren is supposed to be I'll read "Finnegan's Wake", which Dhalgren is a tenth rate imitation of.

I think that Chip Delany has gotten into the same type of thing that Ballard got into back in 1969 with "The Atrocity Exhibition", except that Delany's writing got so fat, and gluttonous, while Ballard's writing got so lean and compressed. But the effect was the same, they both got unintelligible and boring. But Ballard has now come back with "Crash", and "High-Rise", both books being Classics of Speculative Fiction (Not SF, Ballard hasn't been a SF writer for many years).

In the long run I think that Delany will soon come back to the SF mainstream, and grace us with stories like "The Star-Pit", and "The Einstein Intersection", and leave the pretentiousness and gluttony of Dhalgren and Triton behind.

One point Mr. Murn does make in his letter is that Dhalgren is very enjoyable, and accesible to High Schoolers, as would be any long novel with lots of clinical sex and a nameless hero, set in a city where "law and order" have ceased to exist, where everyone can do as they please; and they would also like a book which at the same time, attempts to be great literature, all of which Dhalgren has.

I once thought that Chip Delany, and Roger Zelazny were going to bring about a new "Golden Age" in SF, but I guess I'll have to wait a little longer, because neither one of these gentlemen seems to be bringing this about.

Yours truly
William G. Koegl

7145 71 Place
Glendale, New York 11377

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Dear Mr. Baen,

In starting, I must mention that getting your magazine was almost a total accident. In Fall '75, I was relatively uninitiated in the science fiction genre. I started out with STAR TREK (no groans, please), and had progressed to a few selected short stories. My sister's school had a fund raising drive selling subscriptions to magazines. To help her out I bought a subscription to your magazine somehow thinking (horror of all horrors) that it was that other sf magazine that has six letters. At that time I had only read that other magazine and thought that it was a typical (and only) example of an sf magazine. When I realized that you were not *Analog*, I was worried that you were some slipshod operation. What a happy surprise it was when I received my first issue!

I find your features unbeatable, with Messieurs Robinson and Geis vying for first attention, although Alter usually wins out for top honors. I find Dr. Pournelle extremely lucid and he is always relevant to the events of today—and those of tomorrow.

Your stories are tough to beat, also. I particularly enjoyed "Abandon All Heat, Ye Who Enter Here", and "The Children of the State" promises well. *Galaxy* Continues to take the lead in true Science Fiction.

My one complaint is that I want to hear more of you, Mr. Baen, in some editorials and some news about the condition of the sf magazine market.

Sincerely yours,
Thomas Koegel

4022 Chestnut Avenue
Long Beach, Ca. 90807

Your last point is, I fear, well taken. In mitigation I can only offer that the need for monthly editorials is the . . .bane of harassed editors. . .Perhaps I have been overly demanding of myself in terms of topics. I hereby resolve (as I have before) to Do Better.

Dear Mr. Baen,

I'm going to be greedy and say that I want both Geis and Alter. My reasoning is simple:

they balance each other. Without Geis, Alter's ranting would just get on my nerves, while with no Alter the column wouldn't be quite as interesting. The one thing that both of them prefer to overlook is that neither of them would be where they are today without the other. They're a *team*, dammit, and that's what I want to see.

Lee Ann Goldstein

440 Beech Avenue
Paramus, NJ 07052

Dick will remain, though his role will be . . .altered!

Dear Jim,

Up with Alter Ego!
Down with Geis!

You know these multiple personality cases, though few, can be very interesting. I'm just waiting for the Geis personality to disappear so that Alter can begin to contend with that even weirder personality to come. Over the year *Galaxy* might proceed through an entire gamut of alien critics culminating with one that takes over your job—and then what of *Galaxy*?

Sincerely,
John Robinson

1-101st Street
Troy, NY 12180

What, indeed!

Geis's vote:

Dear Jim,

To help resolve the conflict of interests between Dick Geis and Alter in "The Alien Viewpoint" controversy, let me put my vote in favor of Dick. Sure, I love Alter as well, but the "Prime Selves" must be maintained.

(No name given)

The final tally: Alter, 85%; Geis, .05%; Both, 13.5%; Other, 1%. And thus ends one of the most lopsided contests in modern electoral history. For further information see next month's Alien Viewpoint—by Alter Ego!



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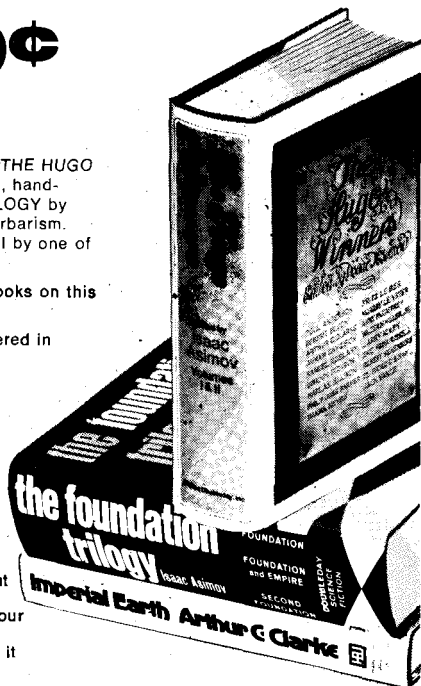
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